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Table of Contents.

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| ORIGINAL ARTICLES— | Page | ABSTRACTS FROM MEDICAL LITERATURE— | Page |
|--|------|--|------|
| Further Observations on Infection with Phage Type 80 Staphylococci in Australia, by Phyllis M. Rountree and Mary A. Beard .. | 789 | Ophthalmology | 808 |
| Heart Disease in Pregnancy, by M. J. Etheridge | 795 | Physical Medicine and Rehabilitation .. . | 808 |
| Misuse of Relaxing Agents, by S. V. Marshall .. | 797 | BRITISH MEDICAL ASSOCIATION— | |
| REPORTS OF CASES— | | New South Wales Branch: Scientific .. . | 810 |
| An Unusual Pelvic Tumour, by P. K. Bell .. | 799 | OUT OF THE PAST .. . | 811 |
| An Unusual Case of Compound Presentation of the Fœtus, by L. W. Alderman .. | 800 | OBITUARY— | |
| Immediate Anaphylactic Shock from Oral Penicillin, by Hugh Fraser .. | 801 | Edward Rowden White .. . | 811 |
| An Unusual Case of Intussusception, by V. H. Hegarty .. | 801 | CORRESPONDENCE— | |
| REVIEWS— | | Blood Groups and Disease .. . | 815 |
| Psychopathology of Communication .. . | 802 | A Lesson in Humility (and Exegesis) .. . | 815 |
| Biophysical Principles of Electrocardiography .. | 802 | RESEARCH— | |
| The Year Book of the Ear, Nose and Throat and Maxillo-Facial Surgery .. . | 802 | The Ophthalmic Research Institute of Australia .. | 815 |
| Mental Health in Home and School .. . | 803 | NOTES AND NEWS .. . | 817 |
| Intermediate Hosts of Schistosoma .. . | 803 | NAVAL, MILITARY AND AIR FORCE— | |
| Atlas of Tumour Pathology .. . | 803 | Appointments .. . | 817 |
| Dental Caries and the Fluoridation of Public Water Supplies .. . | 803 | DISEASES NOTIFIED IN EACH STATE AND TERRITORY OF AUSTRALIA .. . | 819 |
| Methods in Medical Research .. . | 803 | AUSTRALIAN MEDICAL BOARD PROCEEDINGS— | |
| The Year Book of Urology .. . | 803 | New South Wales .. . | 819 |
| Manual of Medical Emergencies .. . | 803 | Tasmania .. . | 820 |
| Topics in Microbial Chemistry .. . | 804 | CORRIGENDUM .. . | 820 |
| Casualty Faking .. . | 804 | MEDICAL APPOINTMENTS .. . | 820 |
| Smoking, Lung Cancer and You .. . | 804 | NOMINATIONS AND ELECTIONS .. . | 820 |
| Scientific Tables .. . | 804 | DIARY FOR THE MONTH .. . | 820 |
| Carcinoma of the Lung .. . | 804 | MEDICAL APPOINTMENTS: IMPORTANT NOTICE .. | 820 |
| BOOKS RECEIVED .. . | 804 | EDITORIAL NOTICES .. . | 820 |
| LEADING ARTICLE— | | | |
| The First Ten Years of the World Health Organization .. . | 805 | | |
| CURRENT COMMENT— | | | |
| The Surgeon's Tale .. . | 806 | | |
| Nitrofurantoin in Recurrent Urinary Infection .. | 807 | | |
| Malaria Eradication .. . | 807 | | |
| Survey of Rubella Pregnancies .. . | 807 | | |
| A Medical Technology Convention .. . | 807 | | |

FURTHER OBSERVATIONS ON INFECTION WITH PHAGE TYPE 80 STAPHYLOCOCCI IN AUSTRALIA.

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In 1953, a new phage type of *Staphylococcus aureus* was isolated from infections of the new-born in a Sydney maternity hospital (Isbister, Durie, Rountree and Freeman, 1954). Later, Rountree and Freeman (1955) reported that this particular strain, which had been given the phage type designation 80, had been responsible for a large proportion of outbreaks of neonatal infection in hospitals throughout Australia during 1954, and that it had become established as a cause of cross-infection in adult patients at the Royal Prince Alfred Hospital, where it had also caused an epidemic of boils in the staff. In 1955, Rountree and Rheuben (1956) found that the majority of penicillin-resistant staphylococci isolated from boils in casualty patients in Sydney and from a series of private patients in Perth belonged to this type.

In Canada, Bynoe, Elder and Comtois (1956) encountered in 1953 and 1954 what is apparently the same staphylococcus and identified it with a phage 81. The two phages, 80 and 81, are not identical, but their propagating

strains are lysed by both phages and can be regarded as identical; their typing pattern is therefore 80/81. Other strains occur which are lysed only by phage 80 or only by phage 81, but these are much more rare.

Since these first reports, strains of phage pattern 80/81 have been isolated in many parts of the world and have been responsible for much serious staphylococcal sepsis.

In the United States, the first identified epidemic occurred in the summer and autumn of 1954 in a maternity hospital in Columbus, Ohio (Shaffer, Sylvester, Baldwin and Rheins, 1957). Since then, the dissemination of the strain has been wide and rapid (Blair and Carr, 1958); it has caused not only neonatal infection, but also much surgical wound infection, and has become the predominant staphylococcus in many hospitals.

In Great Britain, Duthie (1957) reported an outbreak in a group of Southampton hospitals, which commenced in March, 1955, in the maternity unit of one hospital, and spread next to a surgical ward and later to an adjacent hospital. The Bristol Children's Hospital suffered an epidemic of staphylococcal sepsis caused by this strain in March, 1956 (Gillespie and Alder, 1957). Up to the end of 1956, the distribution of the strain in Great Britain was still patchy (Williams, 1957).

In New Zealand, a disastrous epidemic of neonatal infection in Christchurch was reported (Beaven and Burry, 1956) as due to phage type 7/42E/73. However, this typing was done with undiluted phages, and subse-

quently strains from this epidemic sent to us by Dr. J. D. Manning, of the National Health Institute, Wellington, proved to be lysed specifically by phages 80 and 81. Dr. Manning (personal communication) reports that the 80/81 strains are now widespread in New Zealand.

In view of this widespread dissemination of what appears to be a new type of *Staph. aureus*, it seems of interest to record our experiences during the three years that have elapsed since our first report. The material on which this review is based comprises all the coagulase-positive staphylococci isolated from patients and staff in this hospital and in the adjoining King George V Hospital for Mothers and Babies; staphylococci isolated from nasal carriers in blood donors in Sydney; cultures of *Staph. aureus* from epidemics of neonatal sepsis occurring in many parts of Australia; cultures from infants and children in two children's hospitals in Sydney; and a few cultures from other sources received during the influenza epidemic of 1957. Phage 81 was introduced into our set of typing phages in July, 1955, and with few exceptions all strains lysed by phage 80 are also lysed by phage 81 and will be referred to as phage type 80/81.

Neonatal Infections Caused by Phage Type 80/81 Strains.

Incidence.

As was reported previously (Rountree and Freeman, 1956), this strain caused 19 out of 24 outbreaks of infection in maternity hospitals in Australia in 1954. Table I also shows its incidence in the following three years. It is probable that this is not a complete count of the episodes of infection. In spite of widespread publicity and information distributed by State health departments, infection in some hospitals has been detected only when individual infants have been admitted to children's hospitals. Furthermore, since the latter part of 1956, phage typing has been available in Adelaide and Melbourne, and cultures isolated in South Australia and Victoria are now sent to these centres.

However, Table I illustrates clearly that type 80/81 strains continue to be the chief cause of serious neonatal infection in Australia, and that they have been responsible for 70 out of 86 outbreaks. Two of these outbreaks have been described in detail, one at Maitland by Clarke, McGeech and Sippe (1956), and one in Perth by Mathew and Manassis (1956). The only other strain isolated on more than one occasion from the other 16 epidemics was phage pattern 52/52A/80/81, which occurred on four occasions. This strain is closely related to 80/81 (Rountree, 1958), and in all four hospitals in which it appeared it was responsible for a large number of infections in babies and for breast abscesses in their mothers.

Infections in King George V Hospital.

King George V Hospital provided more detailed information concerning the incidence and spread of type 80/81 strains in a large maternity hospital. Early in 1955, there was an increase in the incidence of sporadic infections which were caused by many types of *Staph. aureus*, with a small epidemic due to type 42E. No type 80 infections occurred during this period. At the end of April a trial was carried out of the use of an ointment containing bacitracin and neomycin to treat nasal carriers of *Staph. aureus* among the hospital staff (Rountree, Heseltine, Rheuben and Shearman, 1956); this resulted in a marked reduction of the infection rate in babies (Table II).

Thereafter a close watch was kept on the incidence of infection in the babies, and all strains of *Staph. aureus* isolated from them were phage typed. In addition, nasal swabs were taken at intervals from the medical and nursing staff, and nasal swabs were examined from all new nurses before they commenced duty.

The total number of strains of *Staph. aureus* and the number of type 80/81 strains isolated from lesions in infants up to the end of 1957 are given in Table II, together with the annual neonatal infection rates and the

number and percentage of type 80/81 carriers identified in 1956 and 1957.

The first case of type 80/81 infection in a baby was identified in November, 1955. There was none in December, but in January, 1956, three cases occurred. Thereafter the strain established itself in the hospital, and there was a steady incidence of two to eight cases each month until August, when 17 infections were identified. Most of these occurred in one particular nursery, and the organism was found in large numbers in the nursery dust. Closing of the nursery and its thorough cleaning resulted in the disappearance of the infections from that nursery. However, they continued in other nurseries, and in January, 1957, 16 infections occurred scattered throughout the hospital. Nasal swabs from the staff of all the nurseries were examined, and seven nasal carriers were detected and treated. In February, only three infections were found in the babies.

In spite of constant vigilance, infections in babies have continued, with an average of five per month for the remainder of 1957. Many carriers have been detected among the staff, and the majority of these carriers have also had evidence of clinical infection. The carrier rate is only slightly lower than that of the adjoining general hospital. It should be added that the majority of infections caused by type 80/81 strains have been skin pustules, very few babies have been seriously ill and no deaths have occurred as a result of the infections.

The antibiotic sensitivities of the 159 strains isolated from babies are given in Table VIII.

The experiences of 1956 and 1957 illustrate the difficulties encountered in attempts to eliminate staphylococcal infection from large maternity hospitals. Under present conditions, it appears impossible to eliminate such infections completely, and the best that can be achieved is to keep the incidence at low level, particular attention being paid, where phage typing is available, to the detection of infection with "epidemic" types.

Breast Infections in Mothers.

Infection of the new-born is frequently transferred to the mother of the infected baby, who may suffer from puerperal mastitis progressing to breast abscess. There are reports of an increased incidence of such infections in recent years, and it has been recommended by the National Health and Medical Research Council that they should be made notifiable.

In the five years since 1953, we have typed 195 cultures from such infections (Table IV). These cultures have come from various localities, as well as from patients at Royal Prince Alfred Hospital and King George V Hospital. In 1953 only four cultures were identified as type 80, but in the following years 60% of all cultures have been either type 80 or type 80/81. The remainder of the strains comprised numerous types, none of which occurred on more than a few occasions. It can be concluded that the neonatal infections caused by type 80/81 strains have been associated with many cases of breast abscess and mastitis in the mothers.

Infections in Children.

As has been stressed by others (Ravenholt and La Veck, 1956), infections contracted in the maternity hospital may be responsible for illness appearing after the baby has been taken home, and such staphylococci may also spread to other members of the family.

The following cases illustrate family spread of infection introduced from the maternity hospital.

A child, aged 18 months, died from staphylococcal pneumonia, and from the lung at autopsy a pure culture of *Staph. aureus*, phage type 80/81, was grown. This child's sibling, aged five months, had suffered from skin pustules ever since his discharge from a maternity hospital, and a staphylococcus of phage type 80/81 was isolated from an abscess of his scalp a few days after the death of the first child.

In Victoria, Taft (1955) reported an increase in the incidence of fatal pneumonia in infants in 1953, and

subsequent phage typing showed that most of these cases were due to type 80 strains.

In New South Wales, we have typed 66 cultures of *Staph. aureus* responsible for staphylococcal sepsis in patients at the Royal Alexandra Hospital for Children and at Renwick Hospital, from 1955 to 1957. These cultures do not represent the total number of isolations from children in these hospitals, but are from those of a serious nature including osteomyelitis, pneumonia, empyema, abscesses and skin lesions in children sufficiently ill to be admitted to hospital. The children were in many cases young infants who had been transferred from a maternity hospital, but infections also occurred in older children. Ten children died from staphylococcal pneumonia, and seven of these were infected with type 80/81 strains. Table III shows that 63.6% of these 66 cultures were type 80/81. We conclude that strains of this type are responsible for a large proportion of the serious staphylococcal sepsis in both infants and older children.

TABLE I.
Outbreaks of Staphylococcal Sepsis of the New-born in Australia,
1954 to 1957. Caused by Phage Type 80.

| Year. | Number of Outbreaks Investigated. | Number Caused by Type 80 or Type 80/81. |
|--------------|---|---|
| 1954 | 24 | 19 |
| 1955 | 25 | 22 |
| 1956 | 19 | 16 |
| 1957 | 18 | 13 |
| Total | 86 | 70 |

Incidence of Type 80/81 Strains at Royal Prince Alfred Hospital. In-Patients.

Prior to 1954, antibiotic-resistant staphylococci of phage group III were responsible for much of the cross-infection in this hospital. Originally these strains were resistant only to penicillin and streptomycin, but in 1951 strains also resistant to the tetracyclines and sometimes also to chloramphenicol appeared and gradually established themselves in the hospital environment (Rountree and Thomson, 1953). Such strains are rare in non-hospitalized people, and their incidence in in-patients could be regarded as an index of the cross-infection rate in this hospital.

In 1954, type 80/81 strains were introduced into the hospital by patients admitted with staphylococcal infection, and since that time have been a major cause of infection in the staff and patients. In 1954, 25% of the type 80 infections were in in-patients admitted with the infection, and the remainder were the result of hospital cross-infection. In the succeeding years, as is shown in Table V, approximately 25% of staphylococci isolated from lesions

in in-patients and staff were of this type. In the compilation of Table V, each infected person has been counted once only unless successive cultures were of different types. The relative incidence of the antibiotic-resistant strains of group III fell from 25.8% in 1953 to 15.2% in 1957, although the actual numbers of isolations had not fallen significantly. The figures in Table V indicate that the type 80/81 infections have been superimposed on the pre-existing level of infection, and that most of the increase in the total number of strains isolated each year has been due to this new phage type.

It was not possible, in the large series of patients infected with type 80/81 strains between 1955 and 1957, to differentiate accurately between patients admitted to hospital with infection and those infected in hospital, but it is estimated that approximately 65% acquired their infection in hospital. These hospital infections included infections of surgical wounds, infections of soft tissues, such as boils, and some fatal cases of post-operative staphylococcal pneumonia.

Staff.

During the period under review, the incidence of type 80/81 strains in lesions in the medical and nursing staff has been at a high level. Table VI gives the phage group distribution of strains of *Staph. aureus* isolated from lesions in the staff during the three years. The type 80/81 and type 80 strains are shown separately from the other strains. In the compilation of the table each infected person was counted once unless infected with more than one strain.

By 1957, the incidence of group III strains fell to 10.2%, while type 80 or type 80/81 strains accounted for 64.7% of the total number of infections. Many nurses and resident medical officers suffered from a succession of boils, and of the 108 infections with type 80/81 strains in 1957, 58 were boils or carbuncles. Fifteen members of the staff had styes caused by this strain, and there were 31 infections of the hands or fingers. Very few of those with infected hands had a history of boils or repeated lesions, suggesting that they had been infected by contact with staphylococci in the wards or possibly in the nurses' home rather than that they had infected themselves from organisms carried in the nose.

This large amount of staphylococcal infection in the staff caused by type 80/81 strains has been reflected in an increased incidence of nasal carriers of these cocci. A survey of the nasal carrier rate of *Staph. aureus* was made in April, 1957. Of 210 members of the staff, 107 (51%) were carrying *Staph. aureus*. Of these carriers, 25 (23.4%) had type 80/81 or type 80 strains in their noses, compared with only 10 (7%) of 144 carriers found in November, 1954. The 1957 survey confirmed the previous observation that there was a much higher proportion of type 80/81 strains in lesions in the staff than was found among the nasal carriers, and afforded further evidence that much of this infection is due to contact with staphylococci, and not to autogenous infection with organisms from the nurses' or doctors' own nose.

TABLE II.
Staphylococcal Infection Rate in Infants in King George V Hospital from 1955 to 1957, together with the Number of Nasal Carriers of Type 80/81 Strains in the Staff.

| Year. | Babies. | | | Type 80/81 Infections. | Staff. | |
|---------------------|---------|--------------------------|----------------------------------|---------------------------|-------------------------|--------------------------------|
| | Number. | Number of Infections. | Infection Rate. (Per Centum.) | | Carriers of Type 80/81. | |
| | | | | | Number. | Percentage of All Carriers. |
| 1955: | | | | | | |
| January to April .. | 1430 | 113 | 7.8 | Nil | — | — |
| May to December .. | 2315 | 71 | 2.6 | 1 | — | — |
| 1956 | 4316 | 230 | 5.3 | 89 | 17 | 14.4 |
| 1957 | 4293 | 190 | 4.4 | 70 | 25 | 19.2 |

The consequence of initial infection may, however, be the establishment of the nasal carrier state, and in furunculosis the lesions may be perpetuated by infection from the nose. During the 1957 survey, the nurses and doctors were asked if they had suffered from boils during the preceding two years. Thirty-nine (18.6%) stated that they had. Of these 39 people, 28 (72%) were nasal carriers of *Staph. aureus* compared with 79 (44%) carriers with no history of furunculosis. Furthermore, of these 28, 18 had type 80/81 strains in their noses at the time of examination of nasal swabs, which means that of the 25 type 80/81 carriers identified in the survey, only seven had no history of furunculosis.

Records were available of the infecting organism isolated from the lesions in only 14 of these 39 people; 13 of these had had infection with type 80/81 strains. No records were available from the remainder for a number of reasons; some had not been members of the staff when they had their lesions, and others, on being questioned,

TABLE III.

Phage Type Distribution of *Staphylococcus Aureus* in Children Admitted to Hospital in Sydney with Staphylococcal Disease.

| Year. | Total Number. | Type 80/81. | Type 52/52A/80/81. | Other Types. | Not Typable. |
|----------|---------------|-------------|--------------------|--------------|--------------|
| 1955 .. | 15 | 10 | — | 3 | 2 |
| 1956 .. | 31 | 20 | 1 | 8 | 2 |
| 1957 .. | 20 | 12 | 2 | 4 | 2 |
| Total .. | 66 | 42 (63.6%) | 3 | 15 | 6 |

admitted that they had not reported the infections to the Medical Superintendent. It can be concluded that the incidence of staphylococcal infection in the staff may well have been much higher than that shown in Table VI. It is also apparent that further education of the nursing staff is needed to stress the importance of staphylococcal infection. Since many of these nurses later enter maternity hospitals for further training, they can provide a continuous source of replenishment of type 80/81 strains in the environment of the new-born.

Infections in the General Population.

Our records do not permit an assessment of the amount of staphylococcal infection in the general adult population outside hospitals. However, information is available on the incidence of strains of type 80/81 in some particular groups of people. These comprise nasal carriers of *Staph. aureus* in blood donors at the Red Cross Blood Transfusion Service, patients admitted to our hospital with generalized staphylococcal infection, and patients suffering from fulminating staphylococcal pneumonia associated with Asian influenza in the winter of 1957.

Blood Donors.

From time to time, surveys are made of the nasal carrier rates of *Staph. aureus* in blood donors in Sydney. In the survey made in November, 1955, reported by Rountree and Rheuben (1956), a carrier rate of 51.5%

was found in 200 donors, 25.7% of the carriers having penicillin-resistant strains. However, there were only four carriers of type 80/81 strains. In December, 1957, swabs from a further 200 donors were examined and a nasal carrier rate of 41.5% was found, which is lower than that found on four previous occasions. The incidence of penicillin-resistant strains, 22.9% of all strains, was not significantly different from that in 1955. Seven carriers of phage type 80/81 were found, and two of the closely related 52/52A/80/81 strain. In March, 1954, no carriers of type 80 strains were detected among blood donors, and it is apparent that the strain has spread in the general population in the intervening years.

Generalized Staphylococcal Infection.

From 1950 to the end of 1954, the average number of patients admitted to this hospital with generalized staphylococcal infection was two each year. Since then there has been a marked increase in the incidence of these infections. As is shown in Table VII, in 1955 and 1956 this was entirely due to infection with strains of type 80/81. There were two patients with these infections in 1955, one of whom died, and in 1956 there were 13, seven of whom died. The increased incidence of these infections was maintained in 1957, but in this year there were also more infections with strains other than type 80/81. Two of these were type 81 and type 52/52A/80/81, closely related to type 80/81. Details of these cases will be discussed elsewhere (Hassall and Rountree, 1958). One point to be made here, however, is that the mortality rate among these patients was not significantly higher than among those infected with other types of staphylococci.

Staphylococcal Pneumonia Associated with Influenza.

During the epidemic of Asian influenza in New South Wales in the winter of 1957, much publicity was given to the association of fulminating staphylococcal pneumonia with influenza virus infection. In only 10 cases, however, were staphylococci isolated. In eight cases the diagnosis of influenza was made on clinical grounds; but in two patients who died within three days of the onset of illness, influenza virus was isolated from tracheal washings taken at autopsy. Seven of the 10 strains of *Staph. aureus* proved to be type 80/81, and one strain was a closely related strain, 52/52A/80. While this is a small series of cases, it indicates the importance of type 80/81 strains as the causative organism in fulminating staphylococcal pneumonia in this particular influenza epidemic.

Antibiotic Resistance of Type 80/81 Strains.

The strains of type 80 isolated in 1953-1954 from a variety of lesions and hospitals were nearly all resistant to penicillin. However, very few were resistant to other antibiotics, two out of 329 strains being resistant to penicillin and tetracycline and eight resistant to penicillin, streptomycin and tetracycline. Reports from Canada, the United States and Great Britain indicate that most of the strains of type 80/81 implicated in outbreaks of hospital infection in these countries have been resistant to penicillin, streptomycin and the tetracyclines, but sensitive to chloramphenicol and erythromycin. In some hospitals in the United States these strains have been resistant also to erythromycin (Blair and Carr, 1958). Because of the penicillin resistance of these strains, it is

TABLE IV.

Phage Types of *Staphylococcus Aureus* in Breast Abscesses.

| Year. | Number of Strains. | Number of Localities. | Type 80 and Type 80/81. | Other Types. | | Not Typable. |
|---------|--------------------|-----------------------|-------------------------|--------------------|---------------------|--------------|
| | | | | Number of Strains. | Number of Patterns. | |
| 1953 .. | 29 | 3 | 4 (13.8%) | 20 | 12 | 5 |
| 1954 .. | 23 | 8 | 13 (56.9%) | 9 | 8 | 1 |
| 1955 .. | 35 | 10 | 16 (45.7%) | 14 | 14 | 5 |
| 1956 .. | 58 | 10 | 35 (60.3%) | 21 | 16 | 2 |
| 1957 .. | 50 | 14 | 36 (72.0%) | 10 | 10 | 4 |

obvious that they will be constantly exposed therapeutically to other antibiotics. It is important therefore to have information on the degree to which resistance to these substances has developed in Australia since 1954. In Table VIII is collected information on the resistance of 100 cultures isolated during 1956 and 1957 from lesions in hospitals other than our own, of the cultures from

for the treatment of infants seriously ill with such conditions as staphylococcal pneumonia.

Discussion.

Sufficient data have been given in this paper to justify the view that much of the morbidity due to *Staph. aureus* occurring in Australia in the past four years has been

TABLE V.

Relative Incidence of Antibiotic-Resistant Strains of Phage Group III and of Type 80/81 Strains in Lesions of In-patients and Staff at Royal Prince Alfred Hospital from 1952 to 1957.

| Year. | Total Number of Strains. | Type 80/81 Strains. | Group III Antibiotic-Resistant Strains. |
|---------------------|--------------------------|---------------------|---|
| 1952 | 924 | — | 187 (20.2%) |
| 1953 | 851 | — | 210 (25.8%) |
| 1954: | | | |
| January to June .. | 549 | 86 (6.7%) | 117 (21.3%) |
| July to December .. | 506 | 93 (15.6%) | 139 (27.5%) |
| 1955 | 1402 | 346 (24.6%) | 231 (16.5%) |
| 1956 | 1436 | 393 (27.3%) | 299 (20.8%) |
| 1957 | 1581 | 418 (26.4%) | 230 (15.2%) |

babies in King George V Hospital in 1956 and 1957, and of those from lesions in in-patients and staff at Royal Prince Alfred Hospital during 1957. It will be noted that the number of 422 strains from Royal Prince Alfred Hospital exceeds the 418 strains shown in Table V. This is due to the inclusion of cultures which showed different sensitivities on successive isolation from the same patient.

The figures for Royal Prince Alfred Hospital and King George V Hospital differ from those of other hospitals chiefly in the larger proportion of strains resistant to penicillin and streptomycin. In King George V Hospital, these were particularly prevalent in 1956; but after various

TABLE VI.

Phage Group Distribution of Strains of *Staphylococcus Aureus* Isolated from Lesions in Staff of Royal Prince Alfred Hospital.

| Phage Group. | Year. | | |
|--------------------------|---------|---------|---------|
| | 1955. | 1956. | 1957. |
| I | 18 | 14 | 17 |
| II | 17 | 6 | 8 |
| III | 52 | 18 | 17 |
| | (25.1%) | (12.7%) | (10.2%) |
| Miscellaneous | 3 | 2 | 1 |
| Not classifiable | 2 | 7 | 5 |
| Not typable | 18 | 9 | 11 |
| Type 80 or type 80/81 .. | 115 | 86 | 108 |
| | (51.1%) | (60.5%) | (64.7%) |
| Total | 225 | 142 | 167 |

measures designed to reduce the cross-infection rate had been carried out, their incidence was reduced. Probably owing to the use of chloramphenicol for therapy at Royal Prince Alfred Hospital, there were 10 strains from patients in this hospital that were resistant to penicillin, streptomycin and chloramphenicol and six resistant to penicillin and chloramphenicol. Ten out of the total of 681 cultures were resistant to penicillin, streptomycin, tetracycline and chloramphenicol; the four of these isolated in this hospital were found to be sensitive to erythromycin.

It can be concluded that type 80/81 strains in Australia do not yet display the alarming degree of antibiotic resistance reported in other countries. Nevertheless, several outbreaks of neonatal infection in Australia have been caused by strains resistant to penicillin and tetracycline, and the incidence of such strains may be expected to increase in the future. For this reason, the tetracyclines should not, in the absence of sensitivity tests, be relied on

TABLE VII.
Annual Incidence of Generalized Staphylococcal Infection in Patients Admitted with Infection to Royal Prince Alfred Hospital from 1950 to 1957.

| Year. | Total Number of Infections. | Type 80/81. | | Other Types. | |
|---------------|-----------------------------|------------------|-------------------|------------------|-------------------|
| | | Number of Cases. | Number of Deaths. | Number of Cases. | Number of Deaths. |
| 1950 | 2 | — | — | 2 | 2 |
| 1951 | 2 | — | — | 2 | 0 |
| 1952 | 2 | — | — | 2 | 2 |
| 1953 | 2 | — | — | 2 | 1 |
| 1954 | 3 | — | — | 3 | 1 |
| 1955 | 4 | 2 | 1 | 2 | 0 |
| 1956 | 16 | 13 | 7 | 3 | 2 |
| 1957 | 15 | 8 | 2 | 7 | 1 |
| Total | 46 | 23 | 10 (43.5%) | 23 | 9 (39.0%) |

caused by strains of phage type 80/81. These strains have caused most of the outbreaks of serious neonatal sepsis in maternity hospitals, and have been responsible for much, but not all, surgical wound infection in general hospitals.

Hand in hand with neonatal morbidity there have been found puerperal mastitis and breast abscesses and the transfer of infection to other members of the family group. In the first years of the strain's history in Australia,

TABLE VIII.

Antibiotic Sensitivities of Strains of Phage Type 80/81 Isolated in 1956 and 1957 at Various Hospitals.

| Antibiotic Sensitivity. ¹ | Royal Prince Alfred Hospital. | | King George V Hospital: Babies. | Other Hospitals: Number. |
|--------------------------------------|-------------------------------|--------------|---------------------------------|--------------------------|
| | Staff. | In-patients. | | |
| SSSS | 7 (6.3%) | 22 (7.0%) | 5 (3.1%) | 3 |
| RSSS | 53 (47.8%) | 171 (55.0%) | 77 (48.4%) | 77 |
| RRSS | 33 (29.7%) | 62 (20.0%) | 61 (38.5%) | 5 |
| RRRS | 8 (7.2%) | 26 (8.3%) | 8 (5.0%) | 2 |
| RRSR | — | 10 (3.2%) | — | 1 |
| RSSS | 4 (3.6%) | 13 (4.2%) | 1 | 10 |
| RRRR | 1 | 3 | 5 (3.1%) | 1 |
| RSSR | 4 (3.6%) | 2 | 2 | 1 |
| SSRS | 1 | 2 | — | — |
| Total | 111 | 311 | 159 | 100 |

¹ Resistance (R) or sensitivity (S) to penicillin, streptomycin, the tetracyclines and chloramphenicol in that order.

infections contracted in hospitals constituted the majority of identified cases. The sharp increase in generalized staphylococcal disease in 1956, the increase in the nasal carrier rates of type 80/81 strains among blood donors and the large proportion of cases of recurrent furunculosis due to type 80/81 strains in patients consulting general practitioners indicate that the strains have now spread widely outside hospitals.

Information accumulated since our first report (Rountree and Freeman, 1955) indicates that strains of this type are in general of high infectivity, that they may often be of high virulence, and that they have a predilection for certain sites, such as the skin and respiratory tract of the new-born, the puerperal breast and the respiratory tract of adults damaged by influenza virus infection.

Several types of evidence indicate the high infectivity of the strains. Previous studies of furunculosis indicated that the source of infection was usually autogenous, the site of the infecting organism being the anterior nares of the host. However, the majority of nasal carriers of *Staph. aureus* do not suffer from recurrent furunculosis, which suggests that not all staphylococci are capable of causing lesions in their hosts. The situation with type 80/81 strains appears to be different. Most of the nasal carriers of this particular phage type identified among our hospital staff gave a history of recent and recurrent lesions, indicating either increased virulence or lack of host immunity or both. Infections frequently occurred in the absence of nasal carriage. This suggests that infection may spread easily from person to person either by direct contact or by fomites. The very high infection rates found in babies in some hospital epidemics also support this idea of high infectivity. Under certain industrial conditions the organisms can spread readily. An epidemic of boils in workers in a sand-blasting factory was caused by a type 80/81 strain; no nasal carriers were found among those affected who had been making communal use of protective clothing. One observant dermatologist was able to trace a chain of infection from himself to members of his family and thence to the children of four other families in the same neighbourhood.

The evidence for increased virulence of the type 80/81 strains is not quite so firm. The character of the lesions on the new-born skin suggests that the strains may be more virulent than those found in pemphigus neonatorum. Similarly, furuncles caused by these strains are frequently more painful and more often give rise to toxæmic symptoms. The increase in the incidence of generalized staphylococcal disease caused by the type 80/81 strains may also be taken as an indication of increased virulence; nevertheless, the mortality rate in these cases was not significantly higher than in cases of infection with other strains.

The biological properties of the strain which have determined its marked ecological success in Australia are still largely a matter for speculation. There seems no doubt that penicillin resistance has played a part. Until the appearance of the type 80/81 strains, the majority of penicillin-resistant staphylococci in hospitals belonged to phage group III. Likewise, in people outside hospitals penicillin-resistant staphylococci were usually of phage group III, but were few in number. It is perhaps significant that these group III strains are not often found as the causative organisms in furunculosis, and that they do not appear to be of high infectivity outside hospitals. In other words, while group III strains were able to spread readily under hospital conditions, the majority appear to lack some property necessary for their widespread dissemination to hosts outside hospitals. It may be that this property, hypothetically possessed by most type 80/81 strains but by few group III strains, is the ability to invade the healthy skin and so produce lesions. Until the appearance of the type 80/81 strains, the majority of strains from furunculosis belonged to phage group II. These group II strains are rarely penicillin resistant, and therefore may be less fitted to survive in environments heavily loaded with penicillin. A combination of two properties, penicillin resistance and the ability to invade the healthy skin, may be sufficient to account for the success of the type 80/81 strains.

The factor of host immunity must also be considered. If the type 80/81 strains have a novel antigenic constitution, then their success might be partially explained by the fact that little or no immunity to them would be present in the community. However, this cannot be the complete explanation, since many people are known to have suffered for periods of two years or more from recurrent lesions caused by these strains, which might have been expected to produce some degree of immunity. Nevertheless, a search for antigenic differences between these strains and others less able to produce lesions in their hosts might be a profitable one. In any event, the

time seems ripe for a new attack on the problems of staphylococcal immunity.

Finally, it is of interest that this new strain of *Staph. aureus* was identified in both Australia and Canada at approximately the same time. One can but speculate as to whether its appearance was due to separate events occurring more or less simultaneously in both countries, or whether there was spread from one country to another. However, on chronological grounds Canada can be reasonably regarded as the original source of the strains now widespread in the United States, and it is likely that Australia provided the strains found in New Zealand. The global progress of type 80/81 will be followed with interest by epidemiologists.

Summary.

Staphylococci of phage type 80/81 were responsible for 70 out of 86 major outbreaks of staphylococcal infection of the new-born in Australia from 1954 to the end of 1957.

They predominated in serious infections in infants and older children admitted to children's hospitals in Sydney.

At Royal Prince Alfred Hospital, since 1955, they have been the predominant, but not the only, staphylococci found in cross-infection in patients, and they were the chief cause of staphylococcal lesions in the nursing and medical staff.

Strains of this type are now widespread in the community outside hospitals. A marked increase in the incidence of generalized staphylococcal infection in 1956 and 1957 was due almost entirely to them. In nine out of 12 cases of fulminating staphylococcal pneumonia associated with Asian influenza in 1957, strains of this type were the infecting organisms.

Nearly all strains of this type are penicillin-resistant, but so far resistance to other antibiotics is more limited in extent.

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HEART DISEASE IN PREGNANCY.

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SINCE 1951 all patients with heart disease have been examined at regular intervals in the Medical Reference Clinic at the Royal Women's Hospital, Melbourne, during the ante-natal period. The following report is based upon the records and observations made on a group of 235 consecutive patients (Table I). No attempt is made to review the considerable body of literature concerning the management of heart disease in pregnancy, and the following communication is in the nature of a preliminary report.

TABLE I.
The Royal Women's Hospital Series, 1951 to 1956.
(Five-Year Period.)

| Analysis of Series. | Number of Pregnancies. ¹ |
|---|-------------------------------------|
| Classification (American Heart Association): | |
| 1. | 139 |
| 2. | 43 |
| 3. | 9 |
| 4. | 6 |
| Method of delivery: | |
| Normal | 185 |
| Forceps | 50 |
| Hysterotomy ² | 6 |
| Cesarean section ³ | 4 |
| Undelivered | 2 |
| Maternal deaths | 5 |
| Total | 247 |

¹ There were 235 patients, the average age of whom was 29.5 years (age range of 17 to 45 years).

² Termination by hysterotomy during the third month was performed in six patients for cardiac reasons.

³ Cesarean section was performed at term in four patients for obstetrical reasons, in no case for cardiac reasons.

Diagnosis.

In the early months, pregnancy does not impose any additional difficulties in the diagnosis of heart disease upon those encountered in the non-pregnant woman. The clinical features of rheumatic heart disease are well known; also the common congenital lesions such as septal defect and patent ductus arteriosus are as readily recognized in early pregnancy as in the non-pregnant woman. In the later months some difficulty may be experienced, particularly when the patient is seen for the first time and if pulmonary congestion has developed. Under these circumstances mitral stenosis may be missed, because of difficulty

in recognizing the typical diastolic murmur, especially in the presence of tachycardia. The possibility of a previously unrecognized mitral stenosis should always be kept in mind when acute pulmonary congestion appears for the first time in pregnancy, and careful auscultation may reveal the lesion as the heart rate slows and pulmonary congestion is relieved by appropriate treatment.

A pulmonary or a high left parasternal systolic murmur is a common finding during pregnancy, and is often accompanied by a soft apical systolic murmur. Both murmurs are usually influenced by respiration, and are of relatively short duration. Sometimes the parasternal murmur is quite loud, and may be associated with an exaggerated splitting of the second sound at the pulmonary area. Under such circumstances the possibility of a congenital lesion such as atrial septal defect arises, and the final diagnosis may depend upon the results of radiological and electrocardiographic investigations. About 120 new patients are referred to the Physician's Clinic at the Royal Women's Hospital each year for assessment regarding cardiac disease, and almost half have this innocent or functional systolic murmur. In the majority of patients it disappears after pregnancy.

A normal third heart sound is a common finding in pregnancy, and when this is associated with an apical systolic murmur an erroneous diagnosis of mitral stenosis may be made. This error will be avoided if careful attention is paid to the exact timing of the heart sounds.

In the series of patients at the Royal Women's Hospital, rheumatic heart disease comprised 91% of the diagnoses (Table II), and this corresponds with other reported

TABLE II.
Clinical Diagnosis in 235 Patients.

| Diagnosis. | Number of Cases. | Percentage. |
|---|------------------|-------------|
| Rheumatic heart disease: | | |
| Mitral stenosis | 183 | 91 |
| Mitral stenosis and aortic incompetence | 30 | |
| Aortic incompetence alone | 1 | |
| Congenital heart disease: | | |
| Atrial septal defect | 7 | 7 |
| Ventricular septal defect | 4 | |
| Patent ductus arteriosus | 5 | |
| Primary pulmonary hypertension | 1 | 1 |
| Hypertensive heart disease | 2 | |
| Miscellaneous: ? toxemia of pregnancy | 2 | 1 |
| Total | 235 | |

Note.—One patient had a mitral valvotomy during the twenty-sixth week of pregnancy. There were two patients who had had a mitral valvotomy prior to pregnancy.

series. A few patients with an impressive apical systolic murmur as a single abnormal finding, who had a history of rheumatic fever, have been excluded from the series, even though they probably had a minimal mitral valve lesion of rheumatic origin. Thus all patients with rheumatic heart disease were considered to have unequivocal signs of mitral stenosis, either alone or in association with aortic incompetence. There were two patients in this group with healed subacute bacterial endocarditis. Auricular fibrillation was present in one patient, who died in the post-partum period, and will be considered in the category of maternal deaths.

Congenital heart disease was encountered in 7% of the patients, and the individual diagnoses are listed in Table II. One patient, a primigravida, had severe pulmonary hypertension, and she died with acute cardiac failure a short time after the birth of a living normal child. She was found at post-mortem examination to have a patent ductus arteriosus, but it was considered that this lesion played little part in her disability, and that her condition should be regarded as primary pulmonary hypertension.

Thus our knowledge of the behaviour of patients with congenital lesions is limited, but the majority of patients with acyanotic congenital heart disease tolerate pregnancy

extremely well. There were two patients, aged 40 and 42 years respectively, who had hypertensive heart disease. In both instances, pregnancy was terminated during the third month.

The functional capacity of all these patients immediately prior to the onset of pregnancy was classified according to the American Heart Association criteria (1954) (Table I). It is of note that in the majority of the patients (92%), the limitation of physical activity ranged from none or only slight to moderate.

Assessment of Fitness for Pregnancy.

The assessment of fitness for pregnancy depends on the previous history, with particular reference to exercise tolerance during and between former pregnancies. A history of poor exercise tolerance, recurrent haemoptyses, a previous episode of congestive failure or acute pulmonary congestion, and the presence of auricular fibrillation are unfavourable features, and pregnancy should be avoided. If the patient is seen for the first time early in pregnancy, termination may be advised. If the patient is seen for the first time late in pregnancy, termination carries a greater risk than allowing the patient to go on, and the problem then becomes that of treatment of the cardiac condition, with normal or, if necessary, assisted, vaginal delivery at term.

The combination of aortic and mitral disease does not necessarily have a worse prognosis than either lesion alone, and should not lead one towards advising against pregnancy. Also providing there is a reasonable exercise tolerance, evidence of cardiac enlargement in the absence of pulmonary congestion is not a bar to pregnancy. Indeed, one is frequently surprised how well patients with aortic incompetence and cardiac enlargement tolerate pregnancy.

Patients with mitral stenosis and with evidence of pulmonary hypertension require special care in assessment. They are likely to develop acute pulmonary oedema without warning, particularly during the eighth month of pregnancy or after a respiratory tract infection. Accurate assessment is vital, because the indication for urgent valvotomy may arise during pregnancy.

The foregoing remarks are general guides in management and assessment. They are based on the functional capacity of the patient in terms of the cardiac lesion, and on a knowledge of the behaviour of the disease. However, the subject is more complex than has been indicated; for example, one can assess and describe exercise tolerance fairly accurately, but it is not so simple to relate it to the organic lesion present. Respiratory reserve is normally reduced during pregnancy, owing to an increase in resting pulmonary ventilation, and it is not uncommon to encounter patients with a very poor respiratory apparatus who also have rheumatic heart disease. Thus care has to be taken in assessing the significance of reduction in exercise tolerance in these patients.

Other aspects which influence our assessment of a woman's ability to proceed with an established pregnancy or to undertake future pregnancies include the number of living children, the age of the patient and the social circumstances. Of these factors the least tangible and the most difficult to assess is the social situation. It is accepted that social conditions cannot be divorced from the medical care of a patient, but I believe that they should never influence our decision to advise the termination of an established pregnancy or the prevention of further pregnancies when the medical situation indicates the opposite course.

Active rheumatic carditis is most uncommon during pregnancy; the question occasionally arises, particularly when the patient describes recurring joint pains, which she may refer to as her "rheumatic pains". We have encountered only one patient in the Royal Women's Hospital group in whom there was good evidence of active carditis; this was a young woman of 18 years of age, who was delivered of a still-born premature child. Morgan Jones (1951) has also commented on the rarity of active rheumatic carditis in pregnancy.

In general, one finds that the greater the experience one has in watching these patients through pregnancy and in the subsequent post-partum period, the less ready one is to advise termination for cardiac reasons. Professor Crighton Bramwell (1951) has expressed the same view when, in commenting on the reduction in maternal mortality in a more recent group of patients studied at Manchester, he states: "This is probably partly attributable to the fact that, as our knowledge of the subject increased, we became more and more reluctant to interfere with the normal course of pregnancy."

Mitral Valvotomy During Pregnancy.

One patient in the present series had mitral valvotomy performed during pregnancy. She was aged 32 years; clinically, she had a severe stenosis, and she developed a rapid decrease in exercise tolerance with orthopnoea and pulmonary congestion in the early months. She had a history of congestion, tachycardia and collapse soon after delivery in a previous pregnancy. Mitral valvotomy was performed during the twenty-sixth week. She did very well after operation, and had her baby at term without difficulty.

The question of valvotomy arose in another patient with tight mitral stenosis because of persistent bronchitis and bronchial spasm associated with a poor exercise tolerance; however, we carried on with conservative treatment. She was delivered without any difficulty. Her bronchial infection soon cleared, and valvotomy was performed some weeks later. She has had an excellent result from the operation.

Two patients, who became pregnant subsequent to mitral valvotomy, were able to continue with their usual degree of activity during pregnancy, and were delivered at term without difficulty.

Maternal Mortality.

There were five deaths in the present series of cases. Two of these patients had mitral stenosis. One died from acute pulmonary oedema during the thirty-third week of pregnancy. The other, who had auricular fibrillation with congestive cardiac failure, died 17 days after normal delivery at term. The third patient had severe pulmonary hypertension with a small patent ductus arteriosus, and in the remaining two patients death was due to terminal cardiac failure associated with toxæmia of pregnancy. If we exclude the latter two patients on the grounds that they were not examples of established heart disease, the mortality rate is approximately 1%.

It is unwise to draw conclusions from a comparison of mortality rates from different centres, because the figure in a given series may be influenced by the incidence of termination and sterilization. However, the following reports are of interest. In the Manchester series (Morgan Jones, 1951), the mortality rate was 3% from heart failure in patients with established heart disease. MacRae (1953) reported 228 consecutive cases, without a maternal death in pregnancy or labour. In a series from the National Maternity Hospital, Dublin, where termination and sterilization were never performed, there were no maternal deaths in 220 booked patients with rheumatic heart disease, and the authors in this report considered that there is no place for therapeutic abortion or sterilization (Drury *et alii*, 1954).

Summary.

During a five-year period at the Royal Women's Hospital, Melbourne, 247 pregnancies in 235 women were observed. There were three deaths in cases of established heart disease.

Some aspects of the management of heart disease in pregnancy are discussed.

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MISUSE OF RELAXING AGENTS.¹

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SIXTEEN YEARS have passed since Griffith and Johnson (1942) first reported their epoch-making trials of curare in clinical anaesthesia. They used "Intocostarin", a standardized watery extract of the crude drug. This preparation had already been employed, with promising results, by Bennett (1940) to lessen the traumatic hazards of electroconvulsive therapy, but even so, any extensive application seemed most unlikely. Former workers over the course of many years had failed to solve the problem of the safe clinical use of curare, the lethal reputation of which still effectively barred its practical acceptance. At last, however, the solution was provided by the availability of well-purified material together with the improved knowledge of respiratory physiology demanded by current anaesthetic practice. It soon became evident that, with suitable aid to impaired respiration, virtually all the dangers of curare could be abolished, while any side-effects seemed to be of minor significance. Even if it is rather frequently neglected, this necessity for the maintenance of efficient pulmonary ventilation remains the basic principle in the proper use of all relaxing agents today.

Although King (1935) had isolated the active substance of curare, d-tubocurarine chloride, this did not become commercially available until about ten years later, when as "Tubarine" it soon displaced the earlier watery extract, at any rate in British medical circles. Its use rapidly became extensive, and remains so, especially in view of its general reliability. A more potent derivative, dimethyl tubocurarine iodide, was later introduced clinically by Stoelting *et alii* (1948), but is now rarely used. The claim that this preparation, in adequately relaxing dosages, had a remarkable "sparing effect" on respiration initiated the persistent fallacy that aid to the impaired breathing due to any relaxing agent was of little importance.

Meanwhile, extensive chemical and pharmacological research led to the introduction of various synthetic preparations with muscle-relaxing properties. Among these mephensin ("Myanesin") offered great promise, because its effects were due to depression of spinal reflex activity and not to neuro-muscular paralysis, breathing thus being unimpaired. First used clinically by Mallinson (1947), it was soon discarded for anaesthetic purposes because of alarming side-effects (thrombophlebitis, haemoglobinuria, etc.). Next came gallamine ("Flaxedil"), sponsored by Mushin *et alii* (1949); decamethonium (C₁₂, "Eulissin", "Syncurine") by Organe *et alii* (1949); succinylcholine or suxamethonium ("Scoline", "Anectine", "Breveldil M") by Brücke *et alii* (1951); and finally laudexim ("Laudolissin") by Bodman *et alii* (1952). Two of these, decamethonium and suxamethonium, together with the newer addition suxethonium ("Brevidil E") act by depolarization of the motor end-plates, and so are rather potentiated than reversed by neostigmine, which is the common antidote for all the others (excepting mephensin). Sometimes, however, these depolarizing agents will respond to neostigmine, possibly because of a dual action either on their part (Brennan, 1956) or on that of the antidote (Hunter, 1956).

The main advantage claimed for the synthetic relaxing agents is that they produce fewer side-effects, especially

those due to histamine release (bronchospasm, hypotension, etc.). Suxamethonium and suxethonium are invaluable because of their short yet profound action (for electroplexy, manipulations, intubation, etc.), even if occasionally this may become disconcertingly prolonged. Despite associated tachycardia, gallamine is very satisfactory, although a tendency to cumulation may exist after repeated doses. This may also be the case after the prolonged use of suxamethonium by the continuous-drip method. In general, however, tubocurarine is probably the best agent for major procedures, even if it does cause some degree of autonomic ganglion blockade, and although it may also fail to respond to neostigmine in some circumstances (Hunter, 1956).

It is undeniable that, in competent hands, these potent drugs have provided enormous benefits for patients, anaesthetists and surgeons alike. Narcotic poisoning is reduced, control of difficult subjects facilitated and surgical access greatly improved. Much surgery performed today could not be undertaken without their aid; but this fact does not justify their casual or indiscriminate use, especially by inexperienced or poorly-equipped personnel. Beecher and Todd (1954), in an American survey covering nearly 600,000 surgical cases, reported a nearly sixfold increase of anaesthetic deaths when the relaxing agents were used. Despite this seemingly grave indictment of these drugs, the authors merely advise their further study and the avoidance of their use for trivial purposes. It appears that misuse of the relaxing agents must indeed be widespread in the U.S.A., and a similar tendency is often noticeable here.

Inadequate Ventilation.

There is no question that the commonest and most serious error in the use of the relaxing agents is a neglect to maintain efficient pulmonary ventilation throughout the period of their action. However small their dosages, spontaneous breathing is inevitably depressed by these drugs, and even if a "sparing" effect on respiration is anticipated, this will not ensure adequate gaseous exchanges. Complete apnoea obviously demands control of respiration, but unaided shallow breathing is too often viewed with equanimity, even when the ominous chintugging and sweating of carbon-dioxide excess are present. It seems that if the patient's colour can be kept good with some extra oxygen, all is thought to be well, but the insidious progress of respiratory acidosis is not thereby halted. Consequently the blood pressure rises and peripheral vasodilatation occurs, with excessive and persistent oozing at the site of operation. Such hypercapnia also favours the onset of serious cardiac irregularities and even ventricular fibrillation. In cerebral surgery it causes great swelling of the brain, often sufficient to halt the operation. Suitable aid to respiration will speedily correct these embarrassments, but this aid or control must be consistently maintained.

No excuse for negligence in this regard is afforded by the fact that most reasonably healthy subjects will tolerate such abuse throughout quite prolonged operations, and duly recover satisfactorily. The margin of tolerance in the more seriously ill may become so gravely restricted that extreme care in the use of the relaxing agents, as of the anaesthetics, becomes imperative. Suboxygenation, and less evidently hypercapnia, can be extremely deleterious in such cases, in which imperfect ventilation may be followed by persistent apnoea and narcosis, now considered to be due to intoxication by retained carbon dioxide (Scurr, 1954). Again, in cachectic subjects, lack of pseudo-cholinesterase or disturbances of electrolyte balance may aggravate the situation. A deficiency of potassium ions at the motor end-plates is thought to be a large factor in the phenomenon of neostigmine-resistant curarization (Hunter, 1956). The essential treatment of these conditions is sustained artificial ventilation and not massive dosages of neostigmine. In combined respiratory and metabolic acidosis, the administration of sodium lactate may be required as well (Kenny, 1956).

Technically, aid to depressed or absent breathing must be afforded in expert fashion. Adequate balanced anaesthesia is the first requisite, after the induction of which

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the chosen relaxing agents are given as indications arise. Large total dosages of any one of them should be avoided, so that despite advice to the contrary, a judicious combination is frequently justifiable. Thus, in prolonged operations it is best to begin with the depolarizing agents, especially suxamethonium for intubation and decamethonium for early maintenance, and then to use tubocurarine or gallamine (both of which are reversible by neostigmine) for later relaxation.

Assisted or controlled respiration requires much attention to detail if its benefits are not to become largely vitiated. Bag-compression must be carefully synchronized with any inspiratory efforts of the patient, and release must be complete as soon as adequate inflation has been achieved. This allows for free exhalation, and also facilitates the return of venous blood to the heart. At no time should the reservoir bag of the apparatus be over-distended, for this seriously hampers exhalation, the venous return and even the pulmonary circulation itself. The rate of inflation should rarely exceed 20 impulses per minute, because, if it is too rapid, a state like that due to continuous positive pressure will become established. Frequently it is preferable to induce complete apnoea and to institute fully controlled respiration. More relaxing agent is usually given for this purpose, but often a slight deepening of narcosis will suffice. Alternatively a moderate degree of hyperventilation will obviate the need for either more relaxant or more anesthetic. Excessive hyperventilation is inadvisable, however, because the resultant peripheral vasoconstriction and reduced dissociability of oxyhaemoglobin may cause cerebral hypoxia, especially in the elderly. In addition, reactionary haemorrhage may occur later, when the carbon-dioxide tension rises and the vessels relax.

Trivial Applications.

The trivial applications of the relaxing agents already referred to probably represent their next most serious misuse. To give them to prevent slight movements during superficial operations under, say, thiopentone anaesthesia, when some moderate inhalational supplement would suffice, is really absurd and by no means free of added risk. Further, their use in comparatively major procedures without facilities for aiding depressed respiration is most irresponsible and dangerous. Several cases are known in which this abuse led to untimely death. Sanguine exponents of such liberties often forget—or do not know—that in apnoeic emergencies mouth-to-mouth insufflation can indeed be life-saving, and far better than alleged stimulants or analeptics.

The current enthusiasm for surgical diathermy also occasions much unnecessary recourse to the relaxing agents. Most trained anaesthetists feel that in such circumstances a non-inflammable anesthetic mixture should be employed, and so are often obliged to use relaxing agents in order to enable the surgeon to coagulate a few bleeding points, when simple ligation would have sufficed. Apart from the increased hazards involved, one serious result of this foolish requirement is that students are thereby denied access to many cases suitable for ether anaesthesia, which remains the essential basis of anaesthetic teaching.

Unnecessary endotracheal intubation also encourages substantial misuse of the relaxing agents. They greatly facilitate the passage of the tube, and in free dosage will prevent coughing or "bucking" during the maintenance of anaesthesia. Thus amounts in excess of those required for adequate relaxation may become necessary. Admittedly, intubation is invaluable when really indicated, but many anaesthetists tend to employ it as a routine, and especially to prevent distension of the stomach with anesthetic gases. This may be largely avoided, however, by properly assisted or controlled respiration, or readily corrected by the use of a small stomach tube at the end of the operation.

Yet another item in this category is the increasing expectation by nursing staffs that patients shall be returned to their beds almost fully recovered from the anesthetic. However desirable in many respects, the attainment of this ideal frequently necessitates highly specialized anaesthetic techniques, involving large dosages

of the relaxants and their antagonists, as well as more expert after-care. This procedure is all very well when modern recovery facilities are available, but ordinarily is not justifiable, especially since it deprives nurses of valuable instruction and experience in the care of unconscious patients.

Overdosage.

The earlier assumption that, apart from their effect on respiration, the relaxing agents are virtually free of noxious properties, has led to many abuses. Excessive dosages are frequently employed, largely in order to reduce to infinitesimal proportions the amounts of the anesthetic drugs required. Thus the idea of so-called minimal anaesthesia became established, with the result that many hapless patients have awakened, helpless and inarticulate during their operations, sometimes with untoward psychic consequences. Further, in the seriously ill, this dangerous practice has often led to irreversible paralysis, despite the lavish use of "antidotes" (Hunter, 1956).

There is no doubt that, as with all potent drugs, strict restraint must be exercised with the relaxing agents. They should never be employed as substitutes for reasonably adequate anaesthesia, which is always the primary requirement. Despite jibes about polypharmacy, the principle of balanced anaesthesia, in which the relaxing agents are merely a further resource, must remain undisturbed. Modern practice has firmly established the fact that a judicious combination of drugs, each in moderate dosage, involves fewer deleterious possibilities than the use of any one or more drugs to excess (Wislicki, 1957). It is emphasized that this consideration applies to the relaxants as well as to the narcotics and anaesthetics generally.

Overdosage is frequently initiated at the outset of anaesthesia, especially when a large amount of tubocurarine (15 to 25 milligrammes) or gallamine (80 to 120 milligrammes) is given to facilitate intubation. The result is that towards the end of a fairly prolonged operation the cumulative dosages may be something like 75 and 360 milligrammes respectively, or even more. Substantial quantities of atropine and neostigmine are then required to restore breathing, and these may have to be given again if there is any tendency for apnoea to persist or recur. Thus neostigmine poisoning becomes a distinct possibility; many cases have been reported in which this antidote was quite ineffectual, even after so much as 15 or 20 milligrammes had been given over several hours. Despite efficient artificial respiration, death frequently occurred from cardio-vascular failure in such circumstances (Levin, 1956).

It is therefore considered better, as has been indicated already, to commence with the depolarizing drugs, and if necessary to follow on with the competitive-blocking or non-depolarizing (curariform) agents. With suxamethonium and decamethonium, to the limits of 100 and five milligrammes respectively, perfect relaxation will be provided for intubation and the shorter operations like exploratory laparotomy, herniorrhaphy, appendicectomy and even hysterectomy, suitable anaesthesia being relied on for the completion of the procedure. In longer operations, further relaxation will then be provided by tubocurarine or gallamine, given in progressively diminishing doses as indications arise. Thus the total requirements of all the relaxants will be substantially reduced; by the end of the operation the "depolarizers" will have been eliminated, and the "competitive-blockers" more easily reversed by neostigmine. Criticism of this procedure is expected, especially from those who believe in the invariable efficacy of neostigmine, and also from those who fear prolonged depolarization, as sometimes occurs with suxamethonium. Competent users will, of course, detect this last reaction and give no more relaxing agent of any kind, but will maintain efficient artificial respiration for as long as necessary. A recent report stresses this point admirably (Holland, 1958).

Miscellaneous Points.

It is well known that myasthenia gravis is an absolute contraindication to the use of the curariform drugs, but incipient forms of the disease sometimes escape detection,

and these represent a grave hazard in this regard. Tucker (1956) reports five cases of this nature, and emphasizes that any complaint of previous muscle weakness, however localized or trivial, should be taken seriously. Usually, however, no suggestive information can be elicited, so that in giving these agents an initial test dose is generally advisable. Alternatively, the depolarizing agents should be used to the exclusion of the others (Foldes, 1957).

Another frequently neglected safeguard is the dilution before use of the various relaxing preparations and their antidotes. This practice increases accuracy of dosage, reduces loss of active substance by leakage or wrong placement, and provides a wider margin for the detection of untoward reactions, especially with test doses. A relationship between volume and content is helpful; hence dilute 1.5 millilitres (15 milligrammes) of "Tubarine" to 15 millilitres; 1 millilitre (2.5 milligrammes) of "Prostigmin" to 2.5 millilitres; 2 millilitres (80 milligrammes) of "Flaxedil" to 10 or 20 millilitres; and 1 millilitre (50 milligrammes) of "Scoline" to 5 millilitres. This may be thought tiresome, but it will sooner or later help to prevent trouble. For example, suxamethonium occasionally has a powerful muscarinic effect (Johnstone, 1955), which may lead on to cardiac asystole. Dilution and slow injection, accompanied by observation of the pulse and pupils, will aid the detection of this unpleasant reaction.

As in the earlier days of the relaxing agents, there is at the present time a fairly widespread tendency to avoid the use of neostigmine after curarization has been induced. Although this practice demands such a careful and entirely commendable regulation of the anaesthetic technique as will restore apparently good breathing well before the end of the operation, it discounts the possibility of residual or cumulative effects. That these do occur is proved by the profound effect that can be produced by even a small terminal dose of the relaxing agent previously used. Therefore, neostigmine should always be given after any curariform drug has been used, preceded of course by atropine in full dosage. In following this routine the behaviour of the pulse is the best guide to the quantity required.

Conclusion.

From the foregoing it should be obvious that the relaxing agents are potentially dangerous drugs, and that they should be employed always with the greatest care and judgement. Their casual and haphazard use is absolutely unwarranted, especially by those lacking adequate training and facilities. Under proper conditions they can indeed provide invaluable aids to surgery, even that of minor nature; but this fact never justifies the grave misuses frequently encountered today.

Summary.

1. A brief review of the introduction and development of the relaxing agents in general anaesthetic practice is submitted.

2. Some indication of the differing actions of the depolarizing and non-depolarizing (competitive-blocking or curariform) drugs is given.

3. Unexpected and alarming departures from the usual responses to these agents, in various circumstances, are indicated.

4. The imperative necessity for the maintenance of efficient pulmonary ventilation throughout the period of their action is stressed. Alleged "sparing" effects on respiration should be disregarded.

5. Their use for trivial purposes, when simpler anaesthetic procedures would suffice, is condemned.

6. Their application to facilitate so-called minimal anaesthesia is deplored.

7. Restriction to one relaxing agent, especially in large initial dosage (e.g., gallamine for intubation) may lead to serious cumulative effects, necessitating excessive recourse to neostigmine.

8. Better results are often obtained by commencing with the depolarizing agents in moderate dosage and following on similarly with the curariform preparations.

9. Slightly deeper anaesthesia or moderate hyperventilation will frequently obviate the necessity for supplementary doses of the relaxants.

10. Incipient forms of myasthenia gravis often escape detection; therefore initial test doses of the curariform drugs should always be employed. When in doubt, use the depolarizing agents only.

11. Dilution of the relaxing preparations and of neostigmine offers some protection against unexpected responses to these agents.

12. Despite widespread belief to the contrary, the use of atropine and neostigmine in appropriate dosages is imperative when curariform drugs have been employed, in order to disperse the residual effects.

13. The relaxing agents are dangerous drugs, and their use by those lacking adequate training and facilities is unwarranted.

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Reports of Cases.

AN UNUSUAL PELVIC TUMOUR.

By P. K. BELL,
Penrith.

Miss A., aged 18 years, reported on January 2, 1958, complaining of a swelling in the lower abdomen which had gradually been getting bigger over the last four months, and more so over the last month. She had had a dragging feeling in her lower abdomen, and occasional pain which radiated down her left leg. Menstruation had not been affected, and she had had no urinary symptoms.

Her past history was not significant. She had been an athletic type of girl and had been a champion high jumper.

On examination there was an obvious swelling of the lower abdomen about the size of a five months' pregnancy. It was not tender and felt very firm. It was not possible to define its lower margin or its left border on abdominal palpation. Vaginal examination revealed a large, non-tender cystic mass in the left fornix. The uterus was small and anteverted and the right fornix did not reveal any abnormality. An intravenous pyelogram was normal, and a plain X-ray examination revealed an ill-defined soft tissue swelling in the lower abdomen.

A pre-operative diagnosis of ovarian cyst was made. A laparotomy through a lower mid-line incision was performed, and a large cystic swelling was found in the left iliac fossa, the surface of the swelling being scarred with fibrous tissue. The swelling was found to be continuous with the spleen. The incision was extended upwards and a splenectomy was performed. The tumour was a simple cyst of the spleen and contained about twenty-two ounces of straw-coloured fluid.

The convalescence was uneventful. On further questioning, the patient stated that she had had a fall about five months previously, and had had pain in the left hypochondrium for a few hours. Whether this was the cause of the cystic change or whether she had a primary cyst of the spleen is difficult to know.

The pathology report was as follows: "Sections of the splenic tissue reveal a fibrous-walled cyst which is partly without epithelial lining and otherwise is lined variously by flat, cuboid, and low columnar epithelium. The condition is not neoplastic. The appearances suggest a developmental anomaly."

AN UNUSUAL CASE OF COMPOUND PRESENTATION OF THE FŒTUS.

By L. W. ALDERMAN,
Mullumbimby, New South Wales.

THE following case is reported mainly because of the unusual nature of the compound presentation, which led to the appearance of both an arm and a leg presenting from the vagina in a breech delivery. Compound presentation occurs when an extremity, either an arm or a leg, prolapses alongside the presenting part, so that both enter the pelvic cavity at the same time (Greenhill, 1951). The limb is said to present when the membranes are intact, and to prolapse after they have ruptured.

Clinical Record.

Mrs. A., aged 24 years, first reported with her fourth pregnancy on January 21, 1958. Her last menstrual period had begun on July 5, 1957. Her previous confinements had been normal, but had occurred rather rapidly, her first being in October, 1954, her second in November, 1955, and her third in March, 1957. After her third confinement, there was marked laxity of the perineal structures, moderate cystocele and rectocele and gross stretching of the abdominal muscles. In August, 1957, at which stage, unknown to herself, she was pregnant, she contracted a febrile illness which was diagnosed as a right basal pleurisy. This was interesting, in view of the foetal deformity appearing later, but it settled quickly with penicillin therapy. The patient was then not seen until October 2, 1957, when she thought she was pregnant, but did not submit to examination. On January 21, 1958, examination showed a fundus at the level of a 26 weeks' pregnancy, a breech presentation, the sacrum to the right and anterior, and foetal heart sounds could be heard. When seen on February 22, she had developed an acute hydramnios, the fundus being at the level of a 36 weeks' pregnancy, and foetal parts were palpable only by ballotting. On her next visit on March 13, the hydramnios was still gross, and she was asked to have an X-ray examination, which she deferred till her next visit.

On March 20 she was admitted to hospital with premature rupture of the membranes and a prolapsed cord. Approximately two feet of the cord were prolapsed and pulseless, but as the labour-ward sister said she had heard a foetal heart it was replaced with a Magill's tube under anaesthesia, and the diagnosis of breech presentation was confirmed by palpating a foot in the os, which was two fingers dilated. No foetal heart sounds were heard after this manoeuvre. The presentation remained a breech, but the patient did not come into labour until eight hours had passed, and the present writer was called two hours later, with the information from the labour-ward sister that "something was coming into view". This proved to be the posterior knee, and after perineal infiltration with "Xylocaine" the foot was brought down through the vulva. At the same time a contraction occurred, the leg was delivered to the scrotum and a hand and an arm accompanied it anteriorly, both showing early maceration. After some earnest consideration of this phenomenon, it was decided to perform a breech extraction under anaesthesia, and as the presence of eggshell crackling on abdominal palpation now confirmed a previous tentative diagnosis of hydrocephalus, preparations were made for perforation of the aftercoming head. The hand and arm were replaced above the extended anterior leg. This leg was then brought down and the foetus delivered to the umbilicus. At this point the patient ceased breathing, the radial pulse was absent and no apex beat was detected on auscultation. Manual artificial respiration was commenced. An "E. and J." resuscitator was then applied, and while the emergency thoracotomy bundle was being opened vigorous thumping with the closed fist on the precordium was resorted to, after which, *post hoc* or *propter hoc*, the heartbeats recommenced.

The breech extraction was then recommenced, the extended posterior arm was brought down, and the neck came under the subpubic arch. Here the aftercoming head steadfastly refused to negotiate the pelvic outlet and the partly closed cervix. However, whilst vigorous traction was being maintained on the shoulders, the hydrocephalus suddenly ruptured and was delivered with a rush of cerebro-spinal fluid, fragments of cranium and scattered cerebral matter. The third stage was normal. Examination revealed an intact cervix and perineum, and the patient had an uninterrupted puerperium, being discharged from hospital on the sixth day.

Discussion.

Incidence.

Estimates vary extremely widely as to the incidence of compound presentation. One investigator found extremes of one in every 64 to one in every 1956 labours. Quinlivan (1957) records in one series that those cases in which interference was necessary amounted to about one in every 700. Undoubtedly, prolapse of an arm is a not infrequent minor complication of vertex deliveries. There can probably never be any intelligent appraisal of its statistical significance, because many cases which spontaneously correct themselves are overlooked, unless thorough digital examination happens to have been performed. Also, any statistical evaluation of the effect of compound presentation on the child will be vitiated by the frequency with which prolapse of the cord and prematurity occur at the same time. In a series of 42,410 deliveries, Goplerud and Eastman (1953) found 65 cases of compound presentation, 55 of which were a vertex *plus* hand, six vertex *plus* leg, and four a breech *plus* hand. In 15 of these cases prolapse of the cord occurred as well. There was one case of prolapse of the cord and hand complicating breech presentation.

Œtiology.

This case illustrates certain well known causes of prolapsed cord, namely multiparity with lax musculature, hydramnios, malpresentation, premature rupture of the membranes, prematurity of the foetus and abnormally long cord. As may be expected, the causes of compound presentation are any conditions which prevent complete filling and occlusion of the pelvic inlet by the presenting part, and, as such, are virtually the same as those of prolapsed cord. In the present case, with a dead atonic foetus,

the posterior leg presented by the knee, with extension of the anterior leg, prolapse of the anterior arm and extension of the posterior arm. The only other predisposing factor which has not been mentioned is the abnormally large pelvic cavity, which did not apply to this patient.

Treatment.

Formerly, because of the frequency of tonic contraction and ruptured uterus in cases of compound presentation, cases which presented by the vertex were treated by version and breech extraction. However, in the past it would appear very likely that tonic contraction and rupture of the uterus were in many cases due more to meddling obstetrics than to the compound presentation *per se*, and as version carries with it a high degree of risk both to mother and child it is probable that it should play a very limited part in the management of these cases (Goplerud and Eastman, 1953). When the child is alive and other contributory factors such as a contracted pelvis are present, then Caesarean section is the treatment of choice. However, with a normal pelvis, watchful expectancy, as so often in obstetrics, is the best management, and in many cases the limb will slip back into the pelvis as the head or breech descends. Should hold-up occur, rather than risk an obstructed labour, gentle replacement by manipulation under anaesthesia should be performed. This is usually successful, and, in the case under discussion, combined with bringing down the extended leg, it led to relief of the impaction. In addition, uterine inertia may complicate any case of malpresentation, its exact cause being unknown, and its treatment will also necessitate the replacement of the prolapsed limb.

Summary.

A case of compound presentation is described, in which the foetus presented by the posterior knee and the anterior arm in breech delivery. This was further complicated by prolapse of the cord and hydrocephalus. Brief reference is made to the incidence and aetiology of the condition, and a short survey of more recent suggestions as to treatment is given.

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IMMEDIATE ANAPHYLACTIC SHOCK FROM ORAL PENICILLIN.

By HUGH FRASER,
Brisbane.

Clinical Record.

Mrs. A., aged 25 years, presented with a small ulcer on her right ankle surrounded by a large area of cellulitis. There was accompanying lymphangitis and lymphadenitis as well as evidence of a generalized toxæmia. She was instructed in regard to local treatment, and oral penicillin in a dosage of 800,000 units initially, then 400,000 units three times a day was prescribed. The penicillin used was phenoxymethylpenicillin. The following day at 5 p.m. the patient swallowed the initial dose of penicillin (two tablets, each of 400,000 units). At 5.10 p.m. she complained of dizziness and a roaring noise in her ears, and almost immediately became unconscious.

On examination at 5.15 p.m. (15 minutes after ingesting the initial dose) she was deeply comatose, and did not respond to painful stimuli. Her blood pressure was 60 millimetres of mercury systolic (diastolic not recordable); pulse rate approximately 150 per minute; extremities, cold; respiration very shallow and rapid, the airway not impaired; trachea central; chest clinically clear; abdomen soft; bowel sounds present. There were intermittent clonic movements of the legs and arms. Knee and ankle jerks

were present and equal, but greatly diminished. No Babinski response could be elicited. There was a measles-like rash over the whole of the abdomen and lower part of the chest. There was slight conjunctival oedema and marked conjunctival reddening. There was no oedema elsewhere apparent.

At 5.22 p.m. eight minims of 1/1000 adrenaline solution was injected intramuscularly, followed by two millilitres of "Antistine" injected intramuscularly. At 5.30 p.m. the patient was easily roused and her pulse felt much stronger. At 5.35 p.m. she was fully conscious and able to converse intelligently. At 5.45 p.m. the rash and all other symptoms had disappeared, and the patient's condition was completely satisfactory. She was given adrenaline in oil intramuscularly and oral "Phenergan". The penicillin therapy was discontinued.

Discussion.

This patient had had a week's course of penicillin injections eight years previously, but had otherwise never received the drug. The history as to allergy was negative, except for a vague story of mild infrequent attacks of bronchial asthma in early childhood. The patient had never had hay fever, urticaria, migraine or adverse drug reaction. Without prior knowledge of penicillin ingestion the picture would have been one of severe circulatory collapse of obscure origin, with some signs of central nervous system involvement.

Summary.

A report of a case of anaphylactic shock occurring a few minutes after the ingestion of oral penicillin is presented. There was deep coma and peripheral circulatory collapse. The condition responded satisfactorily to adrenaline and antihistamine injected intramuscularly.

AN UNUSUAL CASE OF INTUSSUSCEPTION.

By V. H. HEGARTY,
Port Macquarie, New South Wales.

THANKS to the work of Clubbe and Hipsley, intussusception is, on the whole, a well-recognized condition, which is usually diagnosed early, and satisfactorily treated. However, occasionally one meets an unusual case which may be difficult to recognize. In a small personal series of 20 cases I have met with three such, two of which had fatal endings. In the third here reported, I was fortunate enough to make an early diagnosis on what might seem to be quite inadequate findings.

Clinical Record.

The patient, a female child aged 14 months, had two elder sisters in good health. Her mother had had an intussusception herself in infancy. Apart from three mild attacks of "gastro-enteritis" in the previous nine months she was in good health. Her mother brought her to see me one afternoon at 3 p.m., with a history of the child having woken from sleep at 10 a.m., crying and obviously in pain. She had vomited several times in the next hour, and her mother considered that the pain was recurrent. She gave her sips of boiled water only to drink, and there was no further vomiting and no diarrhoea.

When I first saw her I was struck by her pallor. She lay still, but on any interference cried lustily, and her colour became normal again. Her temperature was 101°F. and her pulse rate 106 per minute. Her abdomen was easy to palpate except in the right hypochondrium, where she seemed to resent pressure. No bowel sounds were heard, and there was no blood found on rectal examination. The rest of the examination gave negative findings. Despite her pallor she did not appear sick enough to have an intussusception, and I decided to wait for two hours before making up my mind. When I saw her again (5 p.m.) the examination gave results as before, though the pallor was more marked. By this time I had come to the conclusion that a laparotomy was the only safe course.

The abdomen was opened through a right paramedian incision below the umbilicus. There was a moderate amount of clear fluid in the peritoneal cavity. After some difficulty the caecum was found, half descended, and was quite normal. The small bowel was followed proximally, and about six inches from the duodeno-jejunal flexure a small intussusception, about one inch long, was found and easily reduced. There was no engorgement of the intussusceptum, though there was some oedema. No polypus was felt. In view of the early nature of the condition, and the lack of involvement of the caecal region, the appendix was removed and the wound closed. The child made an uninterrupted recovery.

Discussion.

The typical features of pain and shock, tumour and passage of bloody stools, make an easily recognized picture, but this type of case, with an unusual site for intussusception, and the lack of strangulation, is so different as to almost preclude its classification with the group. There were only two symptoms, pain and vomiting, and three signs, fever, pallor, and the lack of bowel sounds; the pathological condition was rather that of obstruction than strangulation. The pain was typical, recurrent and colicky, with the child showing obvious discomfort during the spasms. In cases I have seen, vomiting was not a marked feature, though Ladd and Gross (1941) state that it may be repeated and severe. It is surprising that with such a high intestinal obstruction in this case it was not more marked.

Fever is unusual before dehydration sets in, and was misleading. At the time there was an epidemic of enteritis, with abdominal pain, vomiting and occasional diarrhoea, in the town. It may be that the child did have such an attack which precipitated the intussusception. On the other hand, it is possible that the previous attacks of gastro-enteritis were in fact early intussusceptions which were self reduced. (The possibility of self reduction was first suggested to me by Dr. J. P. Blandy of Nottingham, England, who considered that many cases of intestinal colic in infants were actual transient intussusceptions. I have not seen this suggested elsewhere, but I am inclined to agree with this hypothesis.)

Pallor is a common finding, and was the dominant feature which led me to perform laparotomy in this case. It is difficult to account for it, as with the lack of strangulation there was no blood loss into the bowel wall or lumen. Vomiting was not sufficient to cause dehydration, nor could the oedema of the intussusception, which was slight, and of small size.

Absence of bowel sounds is not mentioned by Ladd and Gross, but it has been a constant finding in the cases I have seen. One would expect to hear increase of sounds coinciding with the colicky pain, but I have not found this to be the case.

The family history was also important.

It might be argued that with no strangulation present there was no immediate urgency, as the case was rather one of obstruction, and probably not complete at that. However, any delay must increase the oedema in the entering layer, and the reduction would then have been more difficult.

Summary.

Unusual cases of intussusception may present difficulty in accurate diagnosis, as positive signs may be slight and indefinite. Nevertheless, early operation is important to minimize post-operative morbidity even if gangrene is not present.

A history of sudden onset of colicky abdominal pain with marked pallor is stressed.

Personal experience of auscultation of the abdomen in these cases is commented on.

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Reviews.

Psychopathology of Communication. Edited by Paul H. Hoch, M.D., and Joseph Zubin, Ph.D.; 1958. New York and London: Grune and Stratton, Inc. 8½" x 5½", pp. 318, with illustrations. Price: \$6.75.

This volume is an attempt to present research and thought on the difficult subject of communication. It contains seventeen individual papers on subjects which range from the descriptive to the experimental and include samples of normal as well as abnormal behaviour. It is specialized, but will be of considerable interest within a limited field.

Biophysical Principles of Electrocardiography. Volume I: Electrocardiographic Analysis. By Robert H. Bayley, M.D.; 1958. New York: Paul B. Hoeber, Inc. 10" x 6½", pp. 251, with many illustrations. Price: \$3.00.

This book is the first of two volumes on electrocardiographic analysis, and in it the object of the author is "to present a step-by-step account of specialized information from the fields of electricity and mathematics that has been reduced to several easily understandable methods useful in analysis of electrocardiographic wave forms". To this end he gives an account of the flow of current in a volume conductor from an electric generator situated within that conductor. The electrical laws involved in this presentation are simplified and applied qualitatively. They necessarily require the approach to be on vector principles. In a final chapter the mathematical development of the equations used is appended for those who may be interested.

This presentation will be valuable to students of the theory of electrocardiography, for, as the author points out, living tissues, in contrast to copper wires, are a poor conducting medium and can therefore "maintain a potential difference between various points within their substance or upon their surface". Generally information on the laws concerned with this type of conductor is not available in elementary texts on electricity.

The present volume is devoted to the analysis of the wave form of the electrocardiogram, leaving clinical application and a study of arrhythmia to the next volume. Ventricular hypertrophy and infarction, conduction blocks, T wave and RS-T junction changes are analysed on a theoretical basis. The author's careful analysis indicates that it may be possible to remove much of the empiricism on which interpretation of the electrocardiogram is based, although he is careful to point out the need for assessing tracings in the light of clinical information.

This pleasing production is an essential addition to the library of students of electrocardiographic theory. It should help greatly those who interpret electrocardiograms. It is well illustrated and has an adequate index and glossary of terms. A list of references to key papers is given, but no complete bibliography has been attempted.

The Year Book of the Ear, Nose and Throat and Maxillo-Facial Surgery (1957-1958 Year Book Series). The Ear, Nose and Throat, edited by John R. Lindsay, M.D.; Maxillo-Facial Surgery, edited by Dean M. Lierle, M.D., and William C. Huffman, M.D.; 1958. Chicago: The Year Book Publishers. 7½" x 5", pp. 384, with 96 illustrations. Price: \$7.50.

This is a new volume in the Year Book series. In the past the literature of oto-rhino-laryngology has been presented as one section of "The Year Book of Eye, Ear, Nose and Throat". Now, however, the two sections have been separated, and ear, nose and throat literature has been given a volume of its own, with an appended section on maxillo-facial surgery. The material on the ear is grouped into chapters dealing with vestibular function and vertigo, hearing and hearing tests, tubal function and inflammatory ear disease, and otosclerosis, fenestration and stapes mobilization. The section on the nose and throat has chapters on the nose and sinuses, the mouth, oro-pharynx and salivary glands, the larynx and neck, the hypopharynx and esophagus, the trachea, bronchi and tracheotomy, allergy, acute respiratory disease, viruses and miscellaneous subjects. These sections are edited by John R. Lindsay, Professor and Head of the Section of Otolaryngology in the University of Chicago School of Medicine. The section on maxillo-facial surgery, which occupies over one-third of the volume, is edited by Dean M. Lierle, Professor and Head of the Department of Otolaryngology and Maxillo-Facial Surgery, and William C. Huffman, Professor of Otolaryngology and Maxillo-Facial Surgery, both of whom are from the State University of Iowa College of Medicine. This

section is important, covering as it does a major modern field of surgery. In modern practice it is much better fitted to share a volume with the literature on oto-rhino-laryngology than is ophthalmology.

Mental Health in Home and School. 1958. London: World Federation for Mental Health; H. K. Lewis and Company, Limited. 8½" x 6", pp. 318. Price: £2 5s. (English).

THE ninth annual meeting of the World Federation for Mental Health was held in Berlin in August, 1958. This book contains the papers read at that meeting. The main subject was that of mental health in home and school. The papers contributed to a symposium on this subject dealt with the concept of mental health and its international implications, maternal feelings towards the newborn, the mental hygiene of the pre-school child, the adjustment of adolescents as emigrants and refugees, psychological services for pre-school and school children, psychological problems in the development of subnormal and highly gifted children, the recognition and treatment of difficulties among children in school, and mental health problems of school leaving. A considerable number of other papers dealt with various technical and special aspects of mental health, and the concluding session was devoted to summing up and discussing the future of the World Federation for Mental Health. In all some thirty-four formal papers were presented.

Intermediate Hosts of Schistosoma: African Biomphalaria and Bulinus. By G. Mandahl-Barth; 1958. Geneva: World Health Organization. 9½" x 6", pp. 132, with 60 illustrations. Price: 20s.

THIS monograph is based on the examination of a large number of specimens of snails collected from many localities which have been compared with the original descriptions and, whenever possible, with type material. The work has been initiated by the World Health Organization in an effort to reduce the long-standing confusion that has existed over nomenclature of snails which serve as intermediate hosts for bilharziasis. In a preface it is stated that the conclusions that are presented have been critically reviewed by several malacologists, who also have had considerable experience with the two genera more particularly studied, *Biomphalaria* and *Bulinus*. There was some disagreement in the appraisal of the work, but unanimous agreement that the study would serve as a valuable basis for more advanced research and a better understanding of the species of these medically important snails of Africa.

Atlas of Tumor Pathology (Washington: Armed Forces Institute of Pathology). Section 1—Fascicle 2: "Tumors of the Skin", by Herbert Z. Lund, M.D.; 1957. 10½" x 7½", pp. 232, with 235 illustrations. Price: \$3.00. Section 5—Fascicle 20: "Tumors of the Esophagus", by Arthur Purdy Stout, M.D., and Raffaele Lattes, M.D.; 1957. 10½" x 7½", pp. 108, with 103 illustrations. Price: \$1.00. Section 7—Fascicle 25: "Tumors of the Liver and Intrahepatic Bile Ducts", by Hugh A. Edmondson, M.D.; 1958. 10½" x 7½", pp. 220, with 207 illustrations. Price: \$2.25.

THESE three fascicles are the latest edition to the unique "Atlas of Tumor Pathology" published by the Armed Forces Institute of Pathology in Washington. In each fascicle the numerous illustrations are first class and beautifully printed, whether in black and white or in colour.

The fascicle on tumours of the skin has been prepared by Herbert Z. Lund. It covers benign tumours and hypoplasias of the epidermis (acanthoses, acanthomata and keratoses), tumours and hypoplasias of or resembling the accessory structures of the skin, cysts of the skin, pre-cancerous dermatoses, carcinoma of the skin, secondary carcinomata of the skin, and mesodermal tumours of the skin. Special attention is paid in an introductory discussion to the questions of nomenclature and aetiology of skin tumours and the histogenesis of epithelial tumours of the skin.

The fascicle on tumours of the esophagus has been prepared by A. P. Stout, Professor of Surgery Emeritus and Professor of Pathology retired, and R. Lattes, Professor of Surgery at Columbia University College of Physicians and Surgeons. The material in this fascicle is grouped into two main sections, dealing respectively with benign tumours, cysts and malformations, and with malignant tumours.

The third new fascicle is concerned with tumours of the liver and of the intrahepatic bile ducts. It has been prepared by H. A. Edmondson, Professor of Pathology, University of Southern California School of Medicine, Los Angeles. Here the material is grouped into sections on

benign epithelial tumours, malignant epithelial tumours, benign mesodermal tumours, malignant mesodermal tumours, miscellaneous tumours, metastatic tumours, tumour-like lesions, and tumours of Glisson's capsule and the suspensory ligaments. An introductory section deals particularly with classification and embryology.

The Problem of Dental Caries and the Fluoridation of Public Water Supplies. By Douw G. Steyn, B.Sc., D.V.Sc.; 1958. Johannesburg: Die Vootrekkers, Beperk. 8" x 5½", pp. 208, with five photographs. Price: 45s.

IN this book the author, who is Professor of Pharmacology in the University of Pretoria, Union of South Africa, has set out the pros and cons of fluoridation of domestic water supplies as a prophylactic measure against tooth decay. The subject is highly controversial, and much has been said and written about it. Although public health authorities have accepted fluoridation of water supplies in many places, it must be conceded that the measure is not universally approved. Professor Steyn states in his preface that he has made a sincere attempt to place all aspects of both sides of the fluoridation controversy before all those concerned, and he draws his material from a wide range of sources. After a brief introductory chapter, he discusses in detail the question of dental decay, considering first the nature and causes of dental decay, and then the prophylaxis, dealing with the use of fluoride in its various modes of application. He devotes a separate chapter to chronic fluorine poisoning, and then discusses and sums up his conclusions. In brief he considers that caries prophylaxis should be carried out (i) in a natural way by means of correcting diet, (ii) by controlling the drinking of carbonated and other acid beverages, (iii) by the practice of sound oral hygiene, and (iv) by the topical application of stannous fluoride. He gives a number of reasons why he considers that artificial fluoridation of public water supplies, as a means of combating tooth decay, cannot at present be recommended. He has quoted freely from a number of non-medical publications and gives his reasons for doing this deliberately. Whether this was a wise measure in such a publication or whether he has proved his point will be a matter of opinion. At least he has put his view frankly and temperately, and should be listened to by all who are concerned with this difficult question.

Methods in Medical Research. Editor-in-Chief, James V. Warren. Volume 7; 1958. Chicago: The Year Book Publishers, Inc. 8½" x 5", pp. 225. Price: \$7.50.

THIS volume, which is the seventh in a series, has four distinct sections. They are concerned respectively with the chemical investigation of muscular tissues, haemodynamic methods in the study of the heart and lungs, methods for the study of human leucocytes, and methods for the study of the histology and cytology of the retina. Individual associate editors deal with the respective sections and, in each case, contribute an explanatory introduction. The material is highly specialized, but should be of great interest to those engaged in the fields concerned.

The Year Book of Urology (1957-1958 Year Book Series). Edited by William Wallace Scott, M.D., Ph.D.; 1958. Chicago: The Year Book Publishers. 7½" x 5", pp. 360, with 79 illustrations. Price: \$7.50.

THE introductory section of this Year Book consists of a short discussion by the editor on the important topic of hormones and disseminated prostatic cancer. Then follows a section on general considerations, containing abstracts on examination of the urine, infections (including gonorrhoea), calculi, urography, instruments and appliances, and miscellaneous material. The remaining sections deal with the kidney, the adrenals, the ureter, the bladder, the prostate and the genitalia. The abstracts are drawn not only from specialist urological journals, but from a wide range of general medical literature.

Manual of Medical Emergencies. By Stuart C. Cullen, M.D., and E. G. Gross, M.D.; Third Edition; 1958. Chicago: The Year Book Publishers, Incorporated. Melbourne: W. Ramsay (Surgical), Limited. 7" x 4½", pp. 302, with many illustrations. Price: £3 8s. 3d.

THE author's object in preparing this manual has been "to make available to the physician a handy reference that will facilitate meeting acute emergencies". The idea has been not to provide complete information of a diagnostic or therapeutic nature, but rather to help the physician save the patient's life in the first few critical minutes. It has

sections on general principles in emergency treatment, airway and artificial respiration, oxygen therapy, circulatory emergencies, acute poisoning, local anesthetic drug reactions, head injuries, allergic disturbances, emergencies due to central nervous system stimulation, the care of the patient in acute and chronic comatose states, miscellaneous emergencies, including gastric dilatation, burns, sunstroke and heat exhaustion, techniques of venipuncture, and a list of relevant drugs and preparations with their dosage. A full index facilitates reference.

Topics in Microbial Chemistry: Antimycin, Coenzyme A, Kinetin and Kinins. By F. M. Strong; 1958. New York: John Wiley and Sons, Inc. London: Chapman and Hall, Limited. 7½" x 4½", pp. 178, with illustrations. Price: \$5.00.

THE three chapters of this book are the E. R. Squibb lectures on chemistry of microbial products, delivered in 1955. The subjects are antimycin, coenzyme A, and kinetin and kinins. The author points out that no attempt is made to provide a comprehensive review of the topics considered. The object is to present a "capsule view" of several individual research projects, and to illustrate how the use of certain experimental techniques has contributed to such progress as has been made.

Casualty Faking. Written and illustrated by Ernest James Ward, with an additional chapter by Dr. J. E. Haine, M.B., Ch.B., D.P.H.; Second Edition; 1958. Published for The British Red Cross Society by Educational Productions, Limited. 8½" x 5½", pp. 46, with 14 illustrations. Price: 4s. 6d.

THIS little book deals, in considerable detail, with the art of depicting and simulating injuries as part of effective first-aid training. It is designed to appeal to the person with no particular experience in this field, rather than to the practised artist. It describes fully the materials needed for the making up of bogus casualties, the preparation of materials and the methods of making up for individual conditions. This description is greatly aided by coloured illustrations. A separate chapter deals with acting as an aid to casualty faking.

• **Smoking, Lung Cancer and You.** By Robert N. C. McCurdy, M.B., Ch.B., D.P.H., with an introduction by D. John Burton; 1958. London: Linden Press. Sydney: John Gilmour and Sons. 7" x 4½", pp. 72. Price: 7s. 6d.

THIS little book, written for the general public, presents the case for the causal relationship between smoking and lung cancer, and urges stronger individual and community action on the subject. It has a commendatory introduction by Dr. John Burton, the Medical Director of the Central Council for Health Education in Great Britain. He sums up the book rather well by remarking that the author's "industry has put much power behind facts, while his humour has kept them on the rails".

Scientific Tables. Documenta Geigy; Fifth Edition; 1956. Basle: J. R. Geigy, S.A. 9½" x 6½", pp. 448, with illustrations. Price not stated.

IN this volume has been included a remarkable collection of factual material. It is stated in the foreword that the main consideration has been to provide the physician and research worker with basic scientific data in the fields of medicine, biology, chemistry, physics and mathematics in a concise form and so spare them the considerable time and trouble involved in collation from many special treatises and journals. All the data have been critically reviewed before incorporation, and every possible care has been taken to avoid errors in reproduction. In general the data given are those for normal values. A considerable proportion of the material is of a medical character. It is impossible to list here the items included, but their extent may be indicated by the fact that the index, at a rough estimate, contains over six thousand entries. This book would be most useful to those engaged in any part of the medical field whether clinical or academic.

Carcinoma of the Lung: An NAFT Symposium. 1958. London, Edinburgh, Belfast: National Association for the Prevention of Tuberculosis and Diseases of the Chest and Heart. 7½" x 5½", pp. 48, with illustrations. Price: 6s. (English).

THIS small book records the papers presented at a meeting on carcinoma of the lung held in London in November, 1957, under the auspices of the National Association for the Pre-

vention of Tuberculosis. The chairman of the meeting, N. Lloyd Rusby, describes it in his introductory remarks as an attempt to encompass most of the important divisions of the subject. The individual papers deal with aetiology, pathology, early diagnosis, radiological diagnosis and the results of mass radiographic examinations, some unusual modes of presentation, surgical treatment, treatment by radiation and chemotherapy, industry and lung cancer, and after-care. Read as a whole, this is an interesting survey of the subject, but the individual contributions are in general too brief to be of great practical value.

Books Received.

[The mention of a book in this column does not imply that no review will appear in a subsequent issue.]

"Cancer of the Female Genital Tract", by Herbert Fe Traut, M.D., and Ralph C. Benson, M.D.; Second Edition; 1957. New York: Davis, Delaney, Incorporated. 9" x 6", pp. 72, with 24 illustrations. Price not stated.

The eighth of a series on the early recognition of cancer.

"Diffuse Lesions of the Stomach: An Account with Special Reference to the Value of Gastric Biopsy", by Ian J. Wood, M.D., F.R.C.P., F.R.A.C.P., and Leon I. Taft, M.B., B.Sc., B.S.; 1958. London: Edward Arnold (Publishers), Limited. 8½" x 5½", pp. 96, with 35 illustrations. Price: 24s. (English).

A book from the Clinical Research Unit of the Royal Melbourne Hospital and the Walter and Eliza Hall Institute of Medical Research.

"Woman's Change of Life", by Isabel Hutton, C.B.E., M.D.; 1958. London: William Heinemann (Medical Books), Limited. 7½" x 4½", pp. 124. Price: 6s. (English).

A book written for women approaching the menopause so that they "may regard its approach with equanimity and full knowledge of what they may expect".

"Orthopaedics in General Practice: Is it Rheumatism, Doctor?", by W. H. Gervis, M.A., M.B., B.Ch., F.R.C.S.; 1958. London: William Heinemann (Medical Books), Limited. 7½" x 4½", pp. 130, with 32 illustrations. Price: 10s. 6d. (English).

The author is an orthopaedic surgeon with a background of experience in general practice.

"The Waking Brain", by H. W. Magoun, Ph.D.; 1958. Springfield, Illinois, U.S.A.: Charles C. Thomas, Publisher. 8" x 6", pp. 160, with 54 illustrations. Price: 36s.

The author is from the Department of Anatomy, School of Medicine, University of California.

"Studies on Fertility: Including Papers Read at the Conference of the Society for the Study of Fertility, Exeter, 1957", being Volume IX of the Proceedings of the Society, edited by R. G. Harrison, M.A., D.M.; 1958. Oxford: Blackwell Scientific Publications. 8½" x 9½", pp. 182, with many illustrations. Price: 25s.

This volume contains papers related to human fertility and also to fertility in experimental animals, both male and female.

"Sensitivity Reactions to Drugs", a symposium organized by the Council for International Organizations of Medical Sciences, established under the joint auspices of UNESCO and WHO, edited by M. L. Rosenheim and R. Moulton, assisted by S. Moeschlin and W. St. C. Symmers; 1958. Oxford: Blackwell Scientific Publications. 8½" x 5½", pp. 243, with many illustrations. Price: 35s.

The title is self-explanatory.

"Minnesota Studies in the Philosophy of Science. Volume II: Concepts, Theories, and the Mind-Body Problem", edited by Herbert Feigl, Michael Scriven and Grover Maxwell; 1958. Melbourne: Oxford University Press. 9" x 5½", pp. 274. Price: 77s.

This book presents "further results of the collaborative research of the Minnesota Center for the Philosophy of Science in the area of philosophical and methodological problems of science in general, philosophy in particular".

The Medical Journal of Australia

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THE FIRST TEN YEARS OF THE WORLD HEALTH ORGANIZATION.

THE Constitution of the World Health Organization came into force on April 7, 1948, and the Organization took its place among the specialized agencies established under the charter of the United Nations. It would not be fitting to let this year go out before referring to the first ten years of its activity. These have been presented in a special volume,¹ in which an effort has been made not only to review the history of the past ten years, but also to place the events of that period against the background of previous achievements, and to indicate the broad lines along which future activities could develop. The beginnings of the World Health Organization were discussed in these columns in 1950.² From time to time since then we have referred to the annual reports prepared by the Director-General of WHO and have commended its activities to the interest of medical practitioners. This commendation we can well repeat, pointing out that the objective of the World Health Organization, as stated in the first article of the Constitution, is "the attainment by all peoples of the highest possible level of health". The preamble to the Constitution contains a series of principles, high in the level of their idealism but not impossible to reach in practical measure, and these have been the background inspiration of WHO in the pursuit of its objective.

As an introduction to the account of the first ten years of WHO, a section of the book is devoted to the history of the evolution of international public health. This had its origin in the International Sanitary Conference which opened in Paris on July 23, 1851, and apparently owed its being convened particularly to current fear about the growing menace of cholera. Great changes were then taking place in the social and political life of Britain and Europe, and developments in world trade and other activities were making clear the need, albeit a self-interested need in many cases, for measures of international cooperation. From this conference issued an International Sanitary Convention with a series of regulations relating particularly to quarantine measures, and, although these had a mixed response from participating governments, a start had at least been made. Only slow progress was made in the subsequent half-century despite a series of International Sanitary Conferences, but by the time the eleventh conference was held in 1903, so much

more was known about the serious epidemic diseases that something could really be done. The subsequent half-century has seen remarkable advances through a series of organizations, most notably the *Office International d'Hygiène Publique*, the Health Organization of the League of Nations, the Health Division of the United Nations Relief and Rehabilitation Administration, various regional bodies, and finally the World Health Organization.

The story of the establishment of WHO is set out fully in this volume with an account of its structure and its basic activities. It is pointed out that WHO, in taking over from some of the earlier bodies the more traditional type of service, such as obligations in international quarantine, epidemiological intelligence, biological standardization, publications, etc., benefited at the same time from the experience its predecessors had acquired. However, it must be realized that its founders gave it much more extensive responsibilities than the earlier bodies possessed. One of its primary aims is to strengthen the health services of countries and territories through advice and assistance, and this volume contains numerous examples of the projects of direct assistance undertaken for this purpose. In this the vision of WHO has been world-wide, and a point is made of the fact that the title World Health Organization is broader in its connotation than any such term as International Health Organization or United Nations Health Organization. There is, of course, close continuous cooperation between WHO and the United Nations, as well as with other inter-governmental and non-governmental organizations. In this regard it is stated that cooperation has been particularly active with the World Medical Association, which the Executive Board of WHO in a resolution dated January, 1955, thanked for its acts of interest in the work of the Organization and its fruitful collaboration. But particularly constructive has been the way in which the two organizations have worked together on the matter of medical education.

The fruit of the ten years of work of WHO is set out in a series of chapters of which we cannot do more here than mention the subjects: malaria, tuberculosis, venereal diseases and treponematoses, virus diseases, zoonoses and veterinary public health, international quarantine, epidemiological and health statistical services, atomic energy in relation to health, environmental sanitation, nutrition, mental health, health services and medical care, maternal and child health, health education of the public, education and training, nursing, pharmaceutical standards in nomenclature, biological standardization, addiction-producing drugs, health laboratory methods, publications in reference services, public information. Much useful information is included in the book, also in the form of annexes, maps, charts and the like. These are commended to the study of those interested. A great deal has already been achieved, and the foundation is laid for much more. It is pointed out that ten years is a relatively short period for identifying general trends in the work of such a body as WHO, but in certain subjects the particular trends are clear. It is certain that the amount of work has increased with corresponding increases in budget and staff. The small number of country projects in the few "priorities" of the first World Health Assembly in 1948 contrasts with the hundreds in 1957. In addition the character of the projects has been changing. The single service of limited

¹ "The First Ten Years of the World Health Organization"; 1958. Geneva: World Health Organization. 9½" x 7", pp. 548, with 28 pages of photographs. Price: 25s. (English).

² M. J. AUSTRALIA, 1950, 1: 377 (March 18).

scope has been increasingly replaced by the comprehensive project that assists a country to organize, for example, a mass campaign against a communicable disease or provides a visiting team of medical teachers. Projects have also been more fully planned and more carefully controlled in their operation. Regional work has been broadened by the more frequent requests in recent years for inter-country projects, demonstrations or seminars. In the educational and teaching programmes the early single fellowship is now often replaced by a system of fellowships provided as part of a whole-country programme, and visits by full teaching faculties, as well as by single teachers, are now used to assist local educational programmes. Educational meetings are more prominent in number and variety. Seminars, study groups and conferences, as well as group training programmes such as courses, have become a feature of most technical programmes in recent years. Coordinated programmes in which several national and international agencies cooperate have become more important. Indeed, the amount of time now given to coordinating plans and programmes is growing year by year. As the scientific basis of medicine and health has expanded, recent technical programmes of WHO have included such subjects as radiation medicine, insecticide resistance and antibiotics. To sum up, three general statements on trends are made: action to meet emergencies is giving place to programmes, planned in advance, for a period of years; projects to bring about a particular advance are giving place to educational work from which general advance may come; emergency action to control communicable diseases is giving place to investigation of their fundamental causes and to work for the eradication of some. If a great deal of the activity that is going on is in the less developed countries of the world, and if a good deal of the money for the work is coming from the better developed countries, that is surely as it should be, and the world as a whole stands to gain by it. Any further criticism on these lines can probably be answered effectively by quoting the principles which have governed the work of WHO since its inception:

The participation of the people themselves in efforts to improve their level of living, with as much reliance as possible on their own initiative; and the provision of technical and other services in ways which encourage initiative, self-health and ritual health, and make these more effective.

It is wrong to carry a man once he can walk, but it may be costly and tedious to get him onto his feet in the first place.

Current Comment.

THE SURGEON'S TALE.

THE story of modern surgery is a fruitful subject for the entertainment and edification of both the medical profession and the lay public. In a recent exposition of this subject, Robert G. Richardson¹ does not hesitate to use language that is highly technical and scientific whenever precise terms are needed to explain certain trends of research or the intricacies of regional anatomy as a

prelude to the description of some new surgical venture or discovery. However, despite the technicalities, his book will give the layman a clear indication of the vast strides that have been made over the last century with the help of the ancillary sciences and the opening up of new avenues of approach for surgical intervention; and it is sure to be appreciated by the medical practitioner who finds it difficult and inconvenient to discover all the latest news for himself.

The early pages of the book are mostly concerned with the few epoch-making discoveries of the second half of the nineteenth century and the story of their belated acceptance by the medical profession. There are detailed accounts of the surgeon's reactions to the introduction of general and local anaesthesia, to the early surgical treatment of vesical calculi, appendicitis and abdominal tumours, and to the initial studies of Louis Pasteur, Lister and Semmelweis, whose efforts to spread their doctrines were thwarted by misunderstandings due to a general ignorance as to the true nature of infection. About the same time, future possibilities for neurosurgery were demonstrated by Sir William Macewen of Glasgow, the operation of thyroidectomy was made safer by Theodore Kocher of Berne, and many promising fields opened up for further exploration led to a greater dependence of the general surgeon upon an accurate knowledge of special pathology, bacteriology, chemistry, anatomy and physiology. Towards the end of the century, specialism within surgery became inevitable after new diagnostic methods were devised by various modifications in the use of X rays and improvements in apparatus or techniques derived from an astonishing progress in all fields of scientific endeavour. The second half of the book is an epitome of those advances which ushered in the modern development of aseptic surgery, specialism in anaesthesia, orthopaedics, ophthalmology, oto-rhino-laryngology, blood transfusion, surgical shock and plastic surgery, ending with the latest achievements in the surgical treatment of diseases and abnormalities of the abdomen, heart, lung and brain.

It is well known that a concentrated national effort such as is demanded by the exigencies of war almost invariably results in the taking of some progressive step for the advancement of medicine or surgery. Dr. Richardson relates how the wars of this century were responsible for notable progress in the fight against infection by the radical excision of damaged tissues, efficient wound drainage followed by continuous irrigation with antiseptic solutions, and the successful trials which firmly established the efficacy of the new life-saving drugs. Even in the less spectacular Spanish Civil War improved methods were devised in the plaster treatment of fractures and in the early institution of skilled operative or resuscitation measures carried out in dangerous proximity to the front line. It is a matter for regret that no authentic confirmation or denial is given here for the story that was published in 1954² about the distinguished Canadian thoracic surgeon, Norman Bethune, whose leftish views on world politics induced him to serve with the Republican forces in Spain and then, in 1938, with the Communist Eighth Route Army, which was still engaged in a civil war while trying to drive the Japanese aggressors out of China. It would appear that Bethune was the first to give blood transfusions to battle casualties immediately behind the front line and the first to bring specialist services to the troops in a mobile surgical unit operating in the forward danger zones. He fully recognized the immense psychological value of his presence behind the lines, although his fearless policy was a matter of grave concern to the Chinese generals who were directing the campaign; but the number of lives he was able to save soon proved ample justification for the risks that were taken. Dr. Richardson tells of similar procedures that were carried out in North Africa during the second World War, and he

¹ "The Surgeon's Tale: A Story of Modern Surgery", by Robert G. Richardson; 1958. London: George Allen and Unwin, Limited. 8½" x 5", pp. 256, with seven illustrations. Price: 25s. (English).

² "The Scalpel, The Sword", by Sydney Gordon and Tex Allan, 1954, London.

quotes an illuminating and authentic incident. A wounded soldier was being carried back to safety on a stretcher when, passing a comrade on his way up to the front line, he was heard to say: "Watcher, Bill—good luck and watch yourself—and don't worry, mate—'alf 'Arley Street is just in front of us."

NITROFURANTOIN IN RECURRENT URINARY INFECTION.

SOME interesting views have been put forward recently by R. W. Lippman, C. J. Wrobel, R. Rees and R. Hoyt¹ in regard to recurrence of urinary infection in chronic pyelonephritis. They state that urine itself makes an excellent culture medium. Moreover, the classical work of J. Oliver in 1939 established the fact that kidneys which have been the site of a chronic inflammatory lesion exhibit micro-obstructive changes within the nephron, as well as the more obvious gross changes in the calyces and pelvis. Those who favour the importance of haematogenous infection, and those who favour retrograde infection, all agree that bacteria find ready access to the renal parenchyma as well as to the major excretory ducts of the organ. Taken together, these facts offer a rational explanation for the readiness with which infection of the upper part of the urinary tract recurs. Such a theory suggests that chronic pyelonephritis cannot be cured, but only arrested, and for permanent arrest it is necessary to maintain, more or less continuously, an inhibitory influence in the urine itself. Sulphonamides in low dosage have been used for this purpose with some success, but the fear of toxicity is there all the time. Lippman and his colleagues decided to evaluate nitrofurantoin in prolonged administration. This agent has a wide spectrum of bactericidal effect, and development of resistance is practically unknown. In addition, systemic toxicity rarely occurs. In this series, nitrofurantoin was given to 49 patients for periods ranging from one month to three years. Apart from occasional difficulties with nausea, no toxic effects were seen. The usual dose (a small one) was one tablet (50 milligrammes) approximately every six hours. In the very first week of therapy, when symptoms were more or less acute, the dose was doubled. The results were excellent in patients with good renal efficiency. In azotemic patients, the clinical effects were difficult to evaluate; their most prominent symptoms were the result of secondary problems (hypertension, cardiac deficiency, azotemia, etc.). It was found that, for the long-continued maintenance dose, 50 milligrammes was the minimum, repeated approximately every six hours. This gave urinary concentrations of the drug which usually exceeded five milligrammes per 100 millilitres throughout the day.

MALARIA ERADICATION.

METHODS for evaluating the success of the world-wide malaria-eradication campaign now under way were recommended by the Expert Committee on Malaria of the World Health Organization at its meeting in Lisbon in September. It is noted that 76 countries are committed to eradicating malaria in order to protect their population at risk (about 749 million people), and it is expected that malaria will have disappeared from Europe and the Americas within five years. Eradication is also expected within that period in some areas of Asia and Africa, but total success for the whole of these continents may take ten to fifteen years. On the other hand, it has to be realized that malaria eradication is a race against time, because some of the mosquitoes transmitting the disease have developed resistance to DDT or other available insecticides. The WHO Expert Committee studied the problem of resistance, which they felt continued to require serious attention. They recommended specific counter-measures to be applied as soon as insecticide resistance appears in a country.

¹ *J. Urol.*, July, 1958.

They also recommended that new insecticides be developed, and asked for more research on the subject of resistance.

The role of anti-malarial drugs was considered essential in malaria eradication, especially in the later stages of the campaign. The WHO experts reviewed the drugs now available and the standard treatment prescribed. They agreed that anti-malarial drugs now available fulfil most of the requirements of an eradication campaign. They indicated also a regimen for the radical cure of malaria infections. What is still needed, in their opinion, is a drug which by a single dose would effect radical cure of malaria without risk, and also prevent transmission.

If malaria eradication among stable populations in towns or villages is comparatively easy, it becomes very difficult among nomads, for instance, Bedouin or Amazon Indian tribes and migrant workers, or groups of people usually dispersed, such as labourers, woodcutters and fishermen, who live in tents or temporary shelters. One possible way to protect these groups from malaria appears to be by the use of medicated salt (Pinotti's method). Common household salt is mixed with anti-malarial drugs, and this mixture becomes a part of the normal diet of people exposed to malaria. This method has been tried out for several years in Brazil and soon will be applied to more than a million people in that country. Experimental trials have been carried out in the United States under WHO sponsorship, and the application of this method in the field is planned in several countries.

The WHO committee stressed the fact that international collaboration becomes increasingly important as countries near the goal of total eradication, in order to avoid the risk of re-infecting areas which have been cleared of malaria, often at great cost. To this end, a number of regional and interregional conferences have been arranged under the auspices of WHO, and in many cases these have led to intercountry agreements.

SURVEY OF RUBELLA PREGNANCIES.

ABOUT the middle of the year we last referred to the survey of rubella pregnancies being conducted at the Department of Obstetrics and Gynaecology at the University of Melbourne. We have been advised that this survey is continuing and again commend it to all medical practitioners. Those who diagnose rubella in a pregnant woman are urged to notify Dr. David Pitt at the Department of Obstetrics and Gynaecology, University of Melbourne, on the day on which the diagnosis is made. His telephone number is FJ 0484 on week days, BL 7392 in the evening and at the week-end.

Dr. Pitt has also advised us that a number of patients in the series have contracted rubella in spite of the prior administration of five millilitres of gamma globulin. Recent work by Krugman and Ward¹ has thrown doubts on the adequacy of this dose, and the Commonwealth Serum Laboratories have now agreed to make available ten millilitres of gamma globulin for women who come into contact with rubella in the first trimester of pregnancy.

A MEDICAL TECHNOLOGY CONVENTION.

DETAILS appear elsewhere in this issue of the first Australian Medical Technology Convention, which is to be held in Sydney during the coming week. The New South Wales Branch of the Australasian Institute of Medical Laboratory Technology is responsible for its organization. The holding of this convention should be of interest to medical practitioners. Medical technologists have become increasingly important medical auxiliaries in recent years. Their keenness and the standard of their work matter a great deal in the carrying out of a vital part of medical investigation. These should be enhanced greatly by the Convention, and the Australasian Institute is to be congratulated on its enterprise in arranging it.

¹ *New England J. Med.*, 1958, 259: 16 (July 3).

Abstracts from Medical Literature.

OPHTHALMOLOGY.

Divergence Excess.

D. S. JOHNSON (*Am. J. Ophthalm.*, July, 1958) reviews 451 cases of exotropia. The characteristics for divergence excess exotropia are exotropia for distance and binocular alignment for near within normal limit, intermittence, and a good near point of convergence. On the basis that divergence excess is an active impulse, the author is of the opinion that the lateral recti should be attacked, and that good results are not obtained until both lateral recti have been recessed seven to nine millimetres irrespective of the degree of divergence.

Over-Correction of Exotropia.

R. L. TOUR AND T. ASBURY (*Am. J. Ophthalm.*, May, 1958) discuss the exotropia which follows five millimetres of bilateral medial recession. They conclude that the operation of bilateral medial rectus recession in cases of alternating exotropia is a sound procedure. Over-correction as a result of this procedure is not the fault of the operation *per se*, but results rather from an attempt to cause recession of the medial rectus muscles to a degree which is in excess of that allowable. The safe limit of medial recession is in the neighbourhood of four millimetres.

The Ocular Lesions of Temporal Arteritis.

H. P. WAGENER AND R. W. HOLLENHORST (*Am. J. Ophthalm.*, May, 1958) review 122 cases of temporal arteritis at the Mayo Clinic. Fifty-four of these patients had some degree of visual impairment. The most common cause of loss of vision was acute ischaemia of the optic nerve. Other ocular manifestations are ischaemic retinopathy, ischaemic infarction of the retina, and ischaemia of the extraocular muscles. The history given and the evidence obtained by palpation of the temporal and occipital arteries, together with estimation of the erythrocyte sedimentation rate, provide information sufficient to make a presumptive diagnosis. Early diagnosis followed by prompt and adequate treatment with corticosteroids may reduce the incidence of blindness, which may occur in this disease.

Retinal Detachment Surgery.

J. S. SHIPMAN (*Arch. Ophthalm.*, August, 1958) describes a technique for treating retinal detachment requiring more than the ordinary retinopexy, but not such an extensive procedure as resection of sclera with insertion of a polythene tube. In his technique two incisions are made through the outer three-quarters of the sclera about three or four millimetres apart, and these are undermined for one millimetre, a strip of full-thickness sclera being left between them. A row of electrocoagulations is then made well back of the equator with small Walker pins or with a Walker electrode. The two thin areas of sclera and the strip of full thickness of sclera between are lightly

touched with Walker electrode. Mattress sutures are inserted. The subretinal fluid is then evacuated between this area and the area of coagulation posterior to it. Further coagulation is carried out from the lips of the incision to the ora serrata to seal off the area. The sutures are then tied to enfold the strip of sclera.

Vitreous Implants in Old Retinal Detachments.

D. M. SHAFFER AND J. L. BUSSEY (*Arch. Ophthalm.*, August, 1958) discuss the technique and use of vitreous implant. The basic premise of the use of vitreous in retinal detachment was that it could pump the retina back into place hydraulically, that vitreous seemed to be what kept the retina in place, and finally that vitreous was the normal content of the vitreous chamber. The authors operated on 105 patients with old detachments, in whose treatment previous surgery had failed. The use of vitreous implant in retinal detachments when indicated results in a satisfactory percentage of physiologically attached retinas.

A Scleral Imbrication Technique.

A. N. LEMOINE *et alii* (*Arch. Ophthalm.*, August, 1958) describe a technique of scleral shortening with incarceration of a hinged roll of sclera. Ninety-seven patients have been operated upon. After six months 64 patients had been followed, and of these 26 had the retina in place. Of 24 patients followed for two years, in only seven was the retina still attached. The indications for this operation are aphakic detachment, large disinsertion, vitreous bands and contractures, marked retinal shrinkage and star folds and previous unsuccessful diathermy.

Diathermy in Retinal Detachment Surgery.

G. CLARK (*Arch. Ophthalm.*, August, 1958) describes a method of diathermy coagulation in the treatment of retinal detachment. A sclerotomy incision is made and carried down to the inner layers. The lips of this incision are undermined, and light diathermy is then applied to the base of the incision. Subretinal fluid is then drained. If the retina is in place, the edges of the sclerotomy wound are closed by simple approximation. If some reduction in volume and area is desired, the wound edges are drawn firmly together. If a buckle is indicated, firm suturing with horizontal mattress sutures will produce a choroidal roll within the eye with the line of reaction on its crest. If desired, a polythene tube may be placed in the bed of the sclerotomy incision before closure.

PHYSICAL MEDICINE AND REHABILITATION.

Pain Threshold and Ultra-Sound, Micro-Wave and Infra-Red Therapy.

J. F. LEHMANN, G. D. BRUNNER AND R. W. STOW (*Arch. Phys. Med.*, September, 1958) have measured the pain threshold after therapeutic application of ultra-sound therapy, micro-waves and infra-red rays. The subjects were volunteers, and

the method used was that of Wolff and Hardy. When ultra-sound and infra-red rays were applied to the area of the ulnar nerve at the elbow, an analgesic effect was found distally in the area supplied by this nerve. These findings are in agreement with previous experimental evidence obtained in isolated nerves or in small animals, which demonstrated that the nerve conduction could be temporarily blocked by heat application or by the rise of temperature which followed the absorption of ultrasonic energy. When infra-red rays or ultra-sound were applied to the skin, and the pain threshold was tested in the same area after treatment, it was again found that an analgesic effect could be produced. When micro-waves were applied in similar fashion to the peripheral nerve or the skin, it was found that the results varied widely, and no statistically significant result could be obtained.

Arterial Circulation in the Legs in Arteriosclerotic Obstructive Disease.

B. S. TROEDSSON (*Arch. Phys. Med.*, September, 1958) has attempted to establish oscillometric clinical norms for the arterial circulation in the legs of patients suffering from arteriosclerotic obstructive disease. He states that oscillometric tests on patients with reduced walking capacity show a direct relation between oscillometric indices and walking capacity. By graphic methods, one can arrive at an oscillometric index expressing certain walking capacities called "basic walking circulation" or "walking point". In the same way, on patients with severe cyanosis of toes or minimal gangrene of one toe, it is possible to arrive at an oscillometric index called the "basic resting circulation" or "gangrene point". Knowledge of these two points permits one to detect early obliterative arterial disease, and to follow it throughout its course and to observe the effects of various treatment procedures. By other tests, one can form a non-healing ulcer index, slow-healing ulcer index and amputation site index, allowing healing, weight-bearing with standard prosthesis and some margin for future deterioration of the arterial circulation. This method of evaluating arterial circulation has proved itself extremely valuable. It has been established for only one type of oscilometer, based on Pachon's principle, but could be established for others in a similar manner.

The Comparative Strength of Neck Flexor Muscles.

T. HUMPHREY AND D. RUBEN (*Arch. Phys. Med.*, September, 1958) have studied the strength of the neck flexor muscles in a group of 100 children aged between three and twelve years. Of this group, 47 were normal controls and 53 were patients who had suffered from poliomyelitis. The object was to determine what is "normal" and to develop a more objective test for grading strength. This preliminary study indicates that it is difficult to establish a "normal" standard for children aged three to twelve years. The use of external resistance can, however, provide a more objective measure of strength than the accepted manual resistance method. Further studies

appear to be indicated to evaluate body type and neck flexor strength, the influence of general and specific exercise, and the reason for the unexpected disparity between women and young girls. Women put up a poor performance in comparison with children who had had poliomyelitis.

An Aid to the Treatment of Hip Contracture after Above-Knee Amputation.

T. F. CHILDS AND M. HOLTZMAN (*Arch. Phys. Med.*, September, 1958) state that adequate range of motion after above-knee amputation improves function with a prosthesis. Flexion-abduction contractures decrease the range of motion when they occur in such circumstances. The formation of a flexion contracture can be prevented, or such a contracture can be stretched, by active extension and simultaneous relaxation of the flexors. Abduction contractures are automatically benefited by stretching of flexion contracture. The authors describe a pressure gauge device to be used as an aid in treating hip contractures in above-knee amputees, and mention both its advantages and its disadvantages.

Interpersonal Processes in a Chronic Care Centre.

C. P. DEUTSCH *et alii* (*Arch. Phys. Med.*, July, 1958) have investigated the quantity and quality of the continuing interpersonal process in a chronic care centre. The data were gathered by means of procedures derived largely from social psychology; they included structured interviews with patients and staff, daily time-sample observations, and process recording of all conferences during the period. The data were coded and the results analysed quantitatively. The primary findings were as follows: (i) The patient's age, sex and degree of respiratory or neuro-muscular disability do not determine his level of social interaction, the attitude of the staff towards him or his mood. The staff reacted to patients as people rather than as cases. (ii) Some patients tend to be staff-orientated, others patient-orientated. (iii) The more specialized, focused and directed the work of a particular staff category, the less its members move from one place to another within the unit. (iv) Contrary to a popular assumption, the members of the staff tend to have more to say about a long-term patient than they do about a newer one. Some of the implications of these findings are discussed.

The Heidelberg Pneumatic Arm Prosthesis.

E. F. HOKNER AND W. ORANGE (*Arch. Phys. Med.*, July, 1958) describe the Heidelberg pneumatic prosthesis for upper extremity amputees, the power source of which is carbon dioxide. The gas is enclosed in a small cylinder, which is contained within the prosthetic device. The person using the apparatus controls the motion desired by releasing the gas outlet valve through pulling on a cable, using such movements as a shoulder shrug, shoulder flexion, intrascapular excursion, body (trunk) bending or other similar procedures. The authors state that in this way it has been possible to

provide the disabled person with the following appliance motions: prehension of the hand or terminal device; pronation and supination of the forearm (a motion that has not been possible to duplicate with any other prosthetic device); elbow flexion and extension; shoulder flexion and extension. All the motions are performed smoothly and quickly, without a time lag, and with a small expenditure of energy. The appliance has also been found useful in assisting persons with a flaccid upper extremity to carry out needed functional motions, by applying the energy supplied by the gas to drive the mechanical parts of an upper extremity arm, and/or hand and/or shoulder brace. The advantages of the prosthetic unit are stated to be: (i) excellent control of its many functions; (ii) powerful motion at all joints; (iii) normal appearance of all motions; (iv) rotation of the hand; (v) the ability to carry out several motions simultaneously. The disadvantages are: (i) lack of interchangeable parts with other units now available; (ii) bulkiness of terminal device (hand); (iii) constant need for replenishment of power source (carbon dioxide). The prosthesis was designed primarily for arm, above-elbow and shoulder amputees, but has been used in forearm amputations as well.

Action of the Diaphragm and Intercostal Muscles during Inspiration.

G. H. KOEFKE *et alii* (*Arch. Phys. Med.*, July, 1958) present the results of an electromyographic study of the sequence of action of the diaphragm and intercostal muscles during measured volumes of inspiration. The observations were made on 11 normal men by means of the multiple-needle electrode technique. The points of onset of muscle activity were determined in breaths of various size, and expressed as percentages of predicted vital capacity. During each breath, the diaphragm became active before the first intercostal muscle. In a significant number of pairs of alternate intercostal muscles, onset of activity in the upper intercostal of each pair preceded that in the lower. The diaphragm became active as much as a quarter of a second before the onset of pulmonary air flow as determined by the spirometer. During quiet breathing, the diaphragm was always active, the first intercostal muscle was usually active, and the second intercostal muscle was occasionally active. The remaining intercostals were never active during quiet breathing. In each intercostal, the number of observations showing activity increased as deeper breaths were taken, until all observations showed activity. This phenomenon occurred in successively lower intercostals with progressively deeper breaths. During inspiration deep enough to require the use of all intercostals, the point of onset of activity advanced progressively in successively lower intercostals.

Arterio-Venous Fistula.

K. G. WAKIM AND J. M. JAMES (*Arch. Phys. Med.*, July, 1958) report the results of a study of the influence of an arterio-venous fistula on the distal circulation in the involved extremity. By the use

of a venous occlusion plethysmograph with a compensating spirometer recorder, the blood flow below the knee was measured before and after induction or repair of the arterio-venous fistula. After the blood flow had been established in seven volunteer subjects with one lower extremity shorter than the other, a femoral arterio-venous fistula was surgically induced in the stunted limb. Thereafter the blood flow below the knee in the involved extremity was reduced, in two of the subjects slightly, but in the remainder significantly. In four patients with a congenital or accidentally acquired arterio-venous fistula in one of the lower extremities, the distal blood flow in each of the involved extremities increased after repair of the fistula. The authors conclude that the presence of an arterio-venous fistula in the lower extremity reduces the flow of blood to the more distal parts.

Miniature Furniture in Aphasia Retraining.

J. EHRLICH AND J. C. COOK (*Arch. Phys. Med.*, July, 1958) describe methods for evaluating the aphasic patient and planning individualized therapy, taking into consideration the educational and vocational background as well as the type and extent of the aphasia. They give details of the use of a specific type of equipment, consisting of separate miniature "rooms" and household objects, tools and other kinds of furnishings made to scale, and discuss the rationale of the method. Three case histories illustrate the employment of the furniture in "auditory training", in "naming" and in "categorizing". Other uses of the furniture have also been devised. The authors state that, because of its qualities of familiarity, colour, solidity and mobility, this type of equipment has been found to lend itself in a variety of ways to the retraining of the aphasic patient.

Evaluation of Rehabilitation in Cerebral Palsy.

A. O. POSNIAK *et alii* (*Arch. Phys. Med.*, August, 1958) present a review of the children's cerebral palsy unit of the department of physical medicine and rehabilitation of the New York Medical College, Metropolitan Medical Centre, since its inception in October, 1954. The clinical material consisted of 53 severely disabled children suffering from cerebral palsy, with a multiplicity of intellectual and physical handicaps. An attempt is made to assess objective functional improvement in major activities of self-care and ambulation. The authors describe in detail the methods of assessment used. They state that training in ambulation as well as in self-care skills can be given even to severely retarded children. They describe the difficulties in developing adequate criteria for evaluation of treatment, especially in speech, and refer to social and psychological factors affecting the care of these children. They conclude that significant progress can be made in the rehabilitation of the severely handicapped cerebral palsied child in an in-patient setting. However, such achievement requires prolonged and concerted effort.

British Medical Association.

NEW SOUTH WALES BRANCH: SCIENTIFIC.

A MEETING of the New South Wales Branch of the British Medical Association was held on March 20, 1958, at the Rachel Forster Hospital for Women and Children. The meeting took the form of a series of clinical demonstrations by members of the honorary staff of the hospital.

Ulcerative Colitis.

DR. A. C. GARVEN-THOMAS and DR. KATHLEEN CUNNINGHAM showed a young woman, aged 24 years, who had had ulcerative colitis for ten years. This had not responded to medical treatment. The patient was losing weight and unable to work. In view of the high possibility that malignant disease might develop, as is the view held at St. Mark's Hospital, London, it was decided to perform a total colectomy. This was done in one stage and an ileostomy was established. The patient did extraordinarily well. She gained a stone in weight in three or four months, was back at work, felt happier than she had felt for years, and found the ileostomy no trouble at all. Histopathological examination of the colon showed that already two adenocarcinomata of the ascending colon had developed; but fortunately that change had not spread to adjacent glands in the mesocolon.

DR. GRACE JOHNSTON also showed a patient suffering from ulcerative colitis. The patient was an unmarried woman, aged 38 years, who had had ulcerative colitis since she had undergone hysterectomy, bilateral salpingectomy and right oophorectomy on May 5, 1954. At the age of 20 years she had sustained fractures of the cervical part of the spine, the pelvis and the sacrum. She had also had an appendicectomy, and later a hemorrhoidectomy and excision of an anal fissure. On August 9, 1954, she complained that she had passed three motions per day for 18 months, and that on the previous day she had passed "a lot of material like red jelly mixed with mucus". On August 12, X-ray examination with a barium enema revealed no abnormality. On September 29, the patient complained of extreme tiredness, and of pain around the umbilicus and in the left iliac fossa before, during and after defaecation. She had lost no weight. On October 1, a blood count gave the following information: the erythrocytes numbered 5,000,000 per cubic millimetre, the haemoglobin value was 12.3 grammes per 100 millilitres, and the leucocytes numbered 10,000 per cubic millimetre, 72% being neutrophils, 1% eosinophils, 23% lymphocytes and 4% monocytes. The erythrocytes were normal in size and shape, platelets were plentiful, and there was no evidence of a blood dyscrasia. On October 26, X-ray examination with a barium enema revealed "mild colitis of the whole of the descending colon". On November 12, the patient complained of pain down the left side of the abdomen. She was passing three, four and five stools per day, which were mixed with blood and mucus. Proctoscopic examination revealed inflamed oedematous bowel mucosa; mucus was detected, but no blood.

In December, 1954, the patient was admitted to hospital, and treated medically and in consultation with a psychiatrist. She was discharged three months later, not cured. A stool examination at that time revealed that the stools were dark and partly formed, but no cells, ova or parasites were seen. On January 12, 1955, X-ray examination with a barium meal revealed no abnormality in the stomach or duodenum; there was no evidence of any gastro-enterostomy; the passage of the meal through the small intestine was very rapid; a follow-through examination revealed no abnormality. On February 10, a further blood examination was carried out. The haemoglobin value was 12.3 grammes per 100 millilitres; a blood film appeared normal, except for central pallor. The serum protein content was 6.1 grammes per 100 millilitres (albumin 4.6 grammes, globulin 1.5 grammes). On February 22, Graham's test revealed that the gall-bladder filled normally, and no calculi were seen.

After her discharge from hospital, the patient intermittently passed blood and mucus *per rectum*. She complained of intense pain before and during defaecation, and her condition appeared to be growing worse. A proctoscopic examination on June 7, 1957, revealed that the bowel mucosa was inflamed and oedematous; blood and mucus were present in the stool, and could be detected in the rectum. Treatment with "Bepanthen" ("Panthenol") was begun on that day.

On June 19, a sigmoidoscopic examination revealed oedematous, moderately inflamed bowel mucosa, with small ulcers covered with fibrinous material; there were many muco-fibrinous strands and a little mucus, but no blood was

detected. On June 25, the patient said that she had passed no blood since June 15. On July 2, she passed copious mucus and a loose stool; she complained of colicky abdominal pain suggestive of gastro-enteritis. On July 9, the stools were normal; no blood had been detected in them for 25 days. On September 11, a sigmoidoscopic examination was carried out, to a height of 15 centimetres; the bowel mucosa was normal, and no blood or mucus was detected. Treatment with "Bepanthen" was stopped at the end of September.

On March 21, 1958, the patient was well, had remained free of symptoms and was able to eat "anything". A sigmoidoscopic examination to 15 centimetres revealed normal bowel mucosa; the stool was formed and brown, and no blood or mucus was detected. On March 28, X-ray examination with a barium enema revealed that the sigmoid colon was mobile and not tender, the colon was regular with normal haustration, and evacuation was practically complete with a normal mucosal pattern.

Dr. Johnston said that the treatment had consisted of "Bepanthen" given (a) in the form of lozenges by mouth (100 milligrammes), one three times a day after food and at night, and (b) in a 5% solution *per rectum*. Two drachms in four ounces of distilled water were run in with a catheter at bedtime, and retained until no blood or mucus was detected in the stool. That procedure was carried out for one week, and then the strength of the solution was halved and the rectal administration was continued until the bowel mucosa was normal. After the sigmoidoscopic examination on June 19, one ampoule (500 milligrammes) of "Bepanthen" was given by intramuscular injection every second day for two weeks, and thereafter once a week until the end of treatment on September 23.

Discussing the rationale of treatment with "Bepanthen", Dr. Johnston said that it had been used frequently and successfully in the treatment of non-specific ulcers in the mouth. Two weeks before she had made the decision to begin the experimental treatment of ulcerative colitis in the case under discussion, she had had a patient with ulcerative oesophagitis, who had responded rapidly to oral treatment with 5% solution (0.5 drachm in water sipped after each soft meal). She had thought that, if the substance worked at one end of the gastro-intestinal tract, it should do so at the other end. It had no known toxic or side effects, and therefore it could be given in massive dosage until a positive result was obtained. As treatment progressed, and the patient began to look and feel better, it appeared that, in some cases at least, deficiency of pantothenic acid was a factor in the causation of ulcerative colitis. During the treatment of the patient under discussion, she had found that one other patient with ulcerative colitis, said to be due to antibiotic therapy, had been successfully treated in Stuttgart. The manufacturers (who had generously supplied the "Bepanthen") stated that "Bepanthen" was the synthesized alcohol ("Panthenol") of pantothenic acid, and in the body was readily converted to pantothenic acid. The latter was part of the vitamin B complex, and was present in the tissues as a component for acetylation. It was therefore concerned with biological acetylations, such as the formation of acetylcholine and the detoxification of certain drugs. With regard to deficiency symptoms, it was stated that pantothenic acid appeared to be essential in many species, and the effects of deficiency in animals were so widespread in the various tissues as to indicate a basic function in the metabolism of all cells. The most notable lesions occurring in pantothenic acid deficiency were those affecting the central nervous system, the adrenal cortex, the gastro-intestinal tract and the respiratory organs.

Gall-Stones with Obstruction.

DR. A. W. MIDDLETON showed a patient who had high intestinal obstruction due to a large gall-stone impacted in the duodenum. It had ulcerated through from the gall-bladder, had become lodged in one of the upper coils of the small intestine, and was about to ulcerate through the bowel. The gall-stone was about the size of an American golf ball. The patient had developed a gas-gangrene infection during her convalescence, and extreme difficulty was experienced in getting the wound to heal. So far she had not been brought back for cholecystectomy, although the gall-bladder still contained quite a number of large stones.

Breast Conditions.

DR. KATHLEEN CUNNINGHAM and DR. ELCIE WYSE gave a demonstration from the breast clinic, which included patients

with hormonal mastitis, whose condition had improved on treatment with vitamin B combined with nor-ethisterone. Patients with carcinomata of the breasts were shown, who had been treated by radical mastectomy and oophorectomy and the administration of androgen; some of them had done well for seven years. Several aged patients with inoperable carcinoma of the breast treated by oestrogen only were shown. One of that group of patients had survived for seven years, and the original tumour was now practically impalpable. Dr. Cunningham and Dr. Wyse also showed several patients who had undergone adrenalectomy and oophorectomy. One patient had survived for three and a half years in perfect health, with no metastases. Another was alive and well three years and four months after adrenalectomy for carcinoma of the breast with metastases to the cerebrum, which had caused aphasia and complete paralysis of the right arm. The patient was back in her home, managing everything, speaking fluently, and able to use her right hand for all purposes including fine sewing.

Orbital Cellulitis with Osteomyelitis.

Dr. EUNICE WILSON showed a female child, who had been admitted to hospital at the age of two weeks. The baby had been born three weeks prematurely, but was well till the day before her admission, when the left eyelids suddenly became swollen and the eye was displaced forwards. On March 17, 1957, there was fluctuation over the tear sac; it was incised under general anaesthesia, and offensive-smelling pus drained freely. A culture yielded a mixed growth of coliform bacilli and *Staphylococcus aureus*, sensitive to "Chloromycetin", "Aureomycin", "Terramycin" and tetracycline, slightly sensitive to streptomycin, and resistant to penicillin and erythromycin. Treatment was with "Chloromycetin" applied locally and given parenterally. After one week, *Staph. aureus* only was recovered, and the sensitivity was unchanged. When the child was aged four weeks, a *Staph. aureus* was recovered, sensitive to erythromycin, slightly sensitive to "Chloromycetin", and resistant to penicillin, streptomycin, "Aureomycin", "Terramycin" and tetracycline. At six weeks, a *Staph. aureus* was recovered, sensitive to "Chloromycetin", "Aureomycin", "Terramycin", erythromycin and tetracycline, and resistant to penicillin and streptomycin. At that stage the child developed extensive dermatitis, thought to be due to an infection by the staphylococcus from the orbit; that was treated by the local application of erythromycin cream with relief. At eight weeks, at which stage the cellulitis was found to be associated with an underlying osteomyelitis of the lachrymal bone, the *Staph. aureus* was found to be of phage type 80/81. At 10 weeks, a *Staph. aureus* was recovered sensitive to "Chloromycetin", "Aureomycin", "Terramycin", erythromycin and tetracycline, slightly sensitive to streptomycin, and resistant to penicillin. X-ray examinations gave the following findings: at five weeks, no bone infection was seen; at eight weeks, there was evidence of involvement of the inner margin of the left orbit by infection; at 12 weeks, no appreciable change had occurred; at 14 weeks, the orbital margin looked to be reconstructed.

Dr. Wilson said that the lesion had been opened surgically on the child's admission to hospital at the age of two weeks and had thereafter been opened after two, three and ten days. On the tenth day a purulent discharge appeared from the left nostril, and on the eleventh day the lesion was reopened under general anaesthesia. On the sixteenth day it was opened with a probe, and at eight weeks osteomyelitis of the orbit was present.

On May 10 the child had been receiving erythromycin for four and a half weeks, and the problem was discussed with Professor Lorimer Dods, who recommended that she should be given erythromycin for six weeks, and gamma globulin in a dose of 1.5 cubic centimetres per kilogram for three weekly injections. As the child's weight was four kilograms, she was given six cubic centimetres per week for three weeks.

She was discharged from hospital on June 11, still with a little oozing from the incision, and was followed up as an out-patient. The eye remained watery, and she was readmitted to hospital on August 22, when the eye was red and purulent. Culture yielded a growth of pneumococci sensitive to penicillin, and the condition cleared in two days. In November the left eye was divergent.

An X-ray examination in February, 1958, revealed no bone infection, and the orbit appeared normal. The eye was much less divergent, and the mother said that it only rarely watered.

Out of the Past.

In this column will be published from time to time extracts, taken from medical journals, newspapers, official and historical records, diaries and so on, dealing with events connected with the early medical history of Australia.

FROM "IS INSANITY INCREASING?", BY F. NORTON MANNING, INSPECTOR-GENERAL OF HOSPITALS FOR THE INSANE, N.S.W.¹

[From the *Australasian Medical Gazette*, October, 1881.]

It has been said that modern science has discovered new realms of lunacy, and there is a growing conviction that the disease should be dealt with in a special manner. Former generations were less particular than ourselves in accurately distinguishing the boundaries of reason and madness. Unless a man took to crowning himself with straw or declaring himself an emperor or a teapot they held him to be sane enough for practical purposes, they hanged him if he committed a murder, and, if we may judge from the quaint literature of former days, they published his books if his mania took a literary rather than a homicidal form. Whereas now there is a growing disinclination to tolerate irregularities of conduct, and those whose insanity was not in former days detected, stand but scant chance of escaping enumeration, if they are not absolutely confined to association with the insane. (Several of the Hebrew Prophets and more than one of the writers of the New Testament would in our day have found a home in an institution for those of disordered intellect.)

Years ago every village had its fool or softy, and numbers of the homeless insane were at large, earning, wholly or in part, their own living and tolerated by those about them: but for years there has been a growing tendency to send to asylums the imbecile and feeble minded—"the finer touch of a finikin civilisation, shrinking from the contact of imperfect fellow creatures". These are the causes given for the increase in the amount of registered insanity which has taken place, and it must at once be admitted that they do account for a large share of it. Whether they account for all is I think very doubtful.

A suspicion arises that some of these causes ought, at all events in old and settled countries, before this time to have become inoperative. The highest possible extension of lunatic life under asylum care should long ere this have been reached in England and in all parts of Great Britain. Asylums of every kind have long since been brought within easy reach of the whole population. Again the number of new cases of insanity occurring, or what has been called the "annual madness of fresh cases", is a better guide to the prevalence of insanity than the number existing, because the increase resulting from accumulation is estimated, but recent figures show that the ratio of admissions to population is increasing, somewhat slowly indeed in England, but more rapidly in this Colony and in South Australia.

Obituary.

EDWARD ROWDEN WHITE.

WE are indebted to Dr. COLIN MACDONALD for the following account of the career of the late Dr. Edward Rowden White.

Edward Rowden White, who died on August 3, 1958, covered in his seventy-four years a wide and varied gamut of life such as is the lot of very few men. In his later years he experienced disaster and suffering, but not defeat; the Fates had found it impossible to destroy an inherently generous and cheerful spirit. He was known to all as Teddy, and the three strong influences which shaped him, I believe, were his elder brother, his school and university college, and his teacher, Dr. Rothwell Adam.

His brother, Alfred Edward Rowden White, was from childhood days an exemplar of whom Teddy was always proud, and for whose wise and gentle counsel he had the greatest respect. No two brothers were happier together. A. E. Rowden White, happily still in practice in Melbourne,

¹ From the original in the Mitchell Library, Sydney.

had been one of the moving spirits in The Royal Australasian College of Physicians, and it was he who strongly encouraged Edward to further, in Australia, the Royal College of Obstetricians and Gynecologists, for the successful development of which Edward, with his friend the late Professor R. Marshall Allan, was largely responsible.

To the example of the elder brother, we must add the influence of school and university college. Geelong Grammar School, which Edward entered on February 12, 1894—the same day as his lifelong friend the late Hume Turnbull—had as its then headmaster a Cambridge graduate, J. Bracebridge Wilson, who was for many years a leader in Victoria of secondary education. Geelong Grammar, the second oldest Victorian public school, at this time was a small academy of no more than 80 or 90 boys, almost all boarders and sons of western district pastoralists; it occupied a two-storied blue stone building on the Moorabool Hill in Geelong, overlooking the river Barwon. In 1875, Bracebridge Wilson had chosen to teach classics at Geelong a young Scot, J. L. Cuthbertson, who before going to Merton College, Oxford, had been a pupil at Trinity College, Glenalmond, Perthshire; this public school—at which the boys wear the Black Watch kilt—is set amongst plantations of spruces and larches along the lovely banks of the Almond, a stream which flows east from the Gramplans to join Tay near Perth.

There was an affinity between Bracebridge Wilson and Cuthbertson: each was a lover of natural history; each revelled in the open country, in the bush and on the river or the lake. Between them they created at Geelong Grammar School that "light blue" spirit which has been so vivid down the years, and of which Edward White was very proud. Cuthbertson was keenly interested in all sports; only tennis he excepted, and that because he thought it prevented boys from paying proper attention to rowing, cricket and rifle-shooting. He was the coach of the crews which did much to make Geelong known, and which were almost invincible for many years. Steve Fairbairn, the legendary Cambridge oarsman, learnt his watermanship at Geelong Grammar School. The success of Cuthbertson's crews was due, to a great extent, to the long Saturday rows, where boys—Teddy well amongst them—found the longest day too short, and the week-end not long enough, to crowd into it all that could be drawn from the rowing camps. Cuthbertson also was a writer of distinction, and his verse was to Geelong what Henry Newbolt's was to Clifton College, England. Typical of his "School Verses", which are all topical, is that headed "The Cox out of Training". It deals with the increase of weight of the school coxswain, Teddy White, who had weighed four stone two pounds when he steered his first public school race in 1894, at the age of ten:

The cox he eateth of rainbow cake,
He drinketh the coconut tree,
The cox he ought to be lean as a rake
But plump as a partridge is he.
Oh! the cox he laughs
As gaily he quaffs
I am off on a journey to seven stone now,
I shall soon be fit for a bow, for a bow.

Teddy coxed the Geelong boat in public school races for no fewer than six years, but he was much more than a coxswain. At the early age of fourteen he became a member of the school first eleven as a left-hand spin bowler, and in his last school year was cricket captain and vice-captain of football.

Entering in 1900 the Trinity College, where Dr. Leeper was then warden, he played cricket with the College and the University eleven, both of which he captained in his final year. In one intercollegiate match he made 133 and 49, taking five wickets in the first innings and nine wickets in the second. At tennis he played each year for his College, eventually captaining that team and the winning interschool team. He played first pennant cricket and tennis for the University and gained a double blue. Geelong Grammar and Trinity remained throughout his life two of his great interests. It was a delight when his only son Jim—who died, alas, on service—rowed bow in the Geelong Grammar eight of 1939. Teddy did not learn of his son's death until after his return from the hell of the prison camps of Formosa and Manchuria; a cruel homecoming, for great plans had been made for Jim's future. Teddy achieved the distinction of being elected president of the Old Geelong Grammarians—than which nothing gave him more satisfaction—and was a member of the Council of Trinity College for 33 years. He never wavered as a firm believer in the value of the boarding school and the residential university college, and lived to see Trinity, with 162 men in residence, the largest college of its kind in Australia.

Graduating bachelor of medicine with final honours in 1907 (the degree of doctor of medicine he took in 1911), he was a resident at the Melbourne Hospital before proceeding to the Children's Hospital, eventually there to be the medical superintendent. Then followed a term as a resident medical officer at the Women's Hospital, with which he was to be honourably associated for almost 40 years. And there he met Rothwell Adam, to whom—after a year's post-graduate work abroad—he became assistant in Collins Street, and of whom he held the highest opinion; he claimed that Adam's precept and example were the major influences in his professional life. Rothwell Adam was born at Leeds, Yorkshire, the son of the Reverend George Adam, and came to Australia as a child; on the land for several years before going to study medicine at Edinburgh, he returned to Australia and was later appointed to the Women's Hospital. His influence there was profound. The manner in which he applied the principles of correct ethical behaviour, in both his professional and his private life, earned the admiration of Edward White, who throughout his life gratefully acknowledged his debt to Adam, by whom he was directed into his specialty.

White was a foundation Fellow of the Royal Australasian College of Surgeons and an early Australian Fellow of the Royal College of Obstetricians and Gynecologists. He made two post-graduate trips overseas; and it was during the 1928 trip that he had the privilege of being asked to perform the first Manchester operation for uterine prolapse in U.S.A.; this he did at H. S. Crossen's Clinic in St. Louis.

In two World Wars he was amongst the first to enlist, and served with distinction—in 1914-1918 with a field ambulance in the Middle East, and in the second World War as commanding officer of the 10th Australian General Hospital at Singapore. Those who were with him during the fateful days of February, 1942, when Singapore was being blasted and ravaged from air and land, say that none on that "naked island" exhibited more courage and cool steadfastness. It was remarkable how, not many months after returning from the prisoner-of-war camps, he had recovered his old *joie de vivre*. He was constantly to be seen in the members' pavilion of the Melbourne Cricket Club, as keen as ever to savour the bowler's gulle or the batsman's grace, and enjoying the greetings of many old friends as the field changed on the summer's afternoon.

Under average height and weight, he possessed a trim, well-knit figure, so often the characteristic of those who excel at games demanding coordination of eye and muscle. The happy name Teddy fitted him like a glove. Invariably well groomed, with pleasant voice, welcoming smile and cheerful greeting, he was indeed a man of elegance and quality.

He had married, after returning from the first World War, Miss Gladys Northcote, daughter of Edward Northcote, for many years general manager of the Adelaide Steamship Company. A wonderfully happy family life was interrupted by the second World War; his only daughter (Mrs. H. A. L. Moran) and three grandchildren survive him, in addition to the well-beloved elder brother.

Forty years ago Edward White was my first clinical teacher at the Women's Hospital, Melbourne, and over the long years there developed for him a warm regard and affection. Teddy was a splendid colleague—always kindly, gentlemanly and rich in human understanding. We at the Women's will never forget him, for he was in the line of succession to Richard Tracy and John Maund, who so strongly founded this hospital 102 years ago.

Dr. A. P. DERHAM writes: Colonel Edward Rowden White finished his tour of duty as Assistant Director of Medical Services of the Fourth Division, Commonwealth Military Forces, and went on to the Unattached List on September 1, 1938. In 1940, however, he returned to active duty and was given command of the 2/10 Australian General Hospital, which was included in the Eighth Australian Division shortly before it sailed for Malaya. This hospital had, of necessity, been flung together at great speed, and the commanding officer and the matron (Dorothy Paske) met for the first time on the troopship (the *Queen Mary*) before they sailed.

On its first arrival in Malaya the hospital went to Malacca, where it shared the Civil General Hospital. In addition to the problems associated with the hasty assembly of his unit, Colonel White had to face difficulties inherent in the casual selection of many of his hospital orderlies, with the necessity of licking them into military shape *de novo*. On the other hand, he had two priceless advantages—his medical officers were of a very high order, and his nurses were

magnificent. His experience of military matters and the accumulated wisdom of nearly sixty years made it possible for him to take the early difficulties of his untrained staff without being broken by the task, as might have happened to a man with a younger and more excitable nature, and very soon he had his unit welded into a smooth working machine. He also found time to be host and friend to visiting medical officers, both military and civil, and he laid the foundations of many friendships which stood us in good stead in the later years of prisoner-of-war life. His unit was essentially a happy one, and he was intensely loyal to his staff as they were to him. I believe their affection for him continued until the day of his death.

Then came the morning of the attack on Pearl Harbour and the first air attack on Singapore. Malacca missed these attentions at first, but the tide of war flowed so fast that our general hospital there was soon virtually in the front line, and early in January, 1942, the hospital, with patients and staff, was moved to Singapore Island, where it was established at a school called Oldham Hall. The area then became the venue for other medical units as they were finally driven out of their last positions.

At this stage the hospital came under aerial bombing, artillery fire, mortar bombing and machine-gun and rifle fire. Little if any of this was aimed deliberately at the hospital; it was aimed at the guns of artillery units which were sited much too close to the hospital, in spite of protests by its commander and of medical officers selected for the duty of keeping the area clear of combatant units. There were some casualties among patients and staff, but no nurse or medical officer was hit while in the hospital. Throughout this trying time Edward White maintained his steadfast composure and exercised his unhurried control. This had a steadying effect on the younger members of the staff, and at no time was there any sign of panic, even among patients who were in tented wards with no means of protecting themselves. If there had been, it would have been promptly quelled by the nursing staff, who were going about their usual duties as if nothing were happening out of the ordinary except that they were, by orders, wearing "tin hats".

On February 12, 1942, the 2/10 A.G.H. was moved to the Cathay building in Singapore city, under heavy fire but without casualty or loss of equipment. The upper floors of this heavy concrete building were occupied by an army corps headquarters, who would not or could not move; thus the hospital Red Cross flag could not be displayed, and the building was the target for heavy shelling and bombing, which fortunately did not reach the patients or staff.

After the capitulation of Singapore on February 15, the hospital was left virtually alone for a day or two; but soon, with other units, it had to move to Selarang near Changi, a distance of 16 miles. The 2/13 A.G.H. followed. Then the Japanese decided to concentrate all British and Australian hospital units in Roberts Barracks about a mile away in Changi. Malaya command consented to the Australian hospitals' remaining under separate administrative arrangements, but agreed that only one Australian hospital commander was necessary. Colonel White was feeling a little weary, and he gladly accepted my offer that he should become director of a post-graduate medical school which we inaugurated in Selarang Barracks and which carried on its functions until Colonel White left for Formosa with the senior officers' party (of colonels and upwards) on August 15, 1942.

The move to Formosa took place under very trying conditions, but Colonel White maintained his composure and good humour through it all. Eventually we reached Karenko on the east coast of Formosa and settled into an old disused naval barracks. The Americans were already in occupation, and we were joined by Dutch senior officers.

The Japanese are naturally clean people, and the barrack rooms into which we were ushered were spotlessly clean and contained clean beds with four warm blankets and rough but clean sheets. The Americans had drawn our crockery and had our evening meal cooked and waiting for us as we arrived tired and damp and hungry.

Edward White ensconced himself in the bed next to the door facing the ocean, which we could hear but not see, and there he lived out his peaceful life, untroubled by the tramp of passing feet of inspecting Japanese guards and innumerable comrades passing to and fro. We used to sit at long wooden tables in the centre of the room on rough wooden forms, which became very hard as our weight diminished and our bones protruded, and justified the use of a folded blanket as a cushion. It was autumn when we arrived in Karenko, and the park of the old barracks was

very beautiful in its russet autumn tints, but we soon became unwilling to sit in the sun. If a Japanese of any rank passed within a quarter of a mile or more, and we failed to leap to our feet and salute, we risked being kicked in the face or body for disrespect to Hirohito. We were reduced to a brisk walk in the open air, but otherwise we stayed in our barrack rooms. Teddy White, as we called him, was at a cruel disadvantage, because his spectacles became unsuitable, and he was attacked at least twice at night by brutal sentries he had not seen, and knocked down and his glasses sent flying. He put up with this humiliation with the dignity which characterized all his actions. His younger comrades tried without effect to protect him by direct appeal to the Japanese on the grounds of his rank and age. Although he was a very reserved man, he made many friends among the British, American and Dutch officers.



About the middle of 1943 we were moved from Karenko to a camp called Shirakawa, which was in a highly malarious valley. There we incurred 60% of malignant tertian malaria in the first twelve months among about 500 senior officers and their orderlies. Teddy White had picked up benign tertian malaria while waiting in the dusk and unprotected beside a railway station on the way to Karenko, but had been adequately treated with "Atebrin" and "Plasmoquine", which were in Australian hands. As far as I know, no Australian in our senior officers' party contracted malignant tertian malaria in Formosa. They must have been protected partly by luck, but more by rigid obedience to medical instructions.

We left Shirakawa early in November, 1944. Brigadiers and over were flown direct to Manchuria, but colonels and below went by ship. Because of delays, what should have been a four-day trip became a twenty-eight days' confinement in an overcrowded hold, where there was no room to stand up. Water was strictly rationed. I do not remember a word of complaint or criticism from Edward White, who put up with these discomforts with his usual philosophy. We disembarked at the port of Moji on the Inland Sea and stayed for about a fortnight in a hotel at Beppu, which was clean and provided us with hot communal baths and good but inadequate food. Then we were moved to Pusan and were put on a troop train bound for the north. Our treatment improved for a short time, because it was just after the Potsdam Conference, and the Japanese were still hoping that the Allies might meet their demands on compromise terms.

This period lasted only two or three weeks, and was succeeded by even harsher beastliness than before. After two and a half days in a crowded troop train, in which we took it in turns to sleep sitting up, we arrived at some old Russian-built barracks in northern Manchuria. On the day after arrival it was 35° below zero Centigrade; it was too dry to snow, and a fine dust off the Gobi Desert seeped in even through our double windows, which had been sealed with strips of paper applied with Japanese paste. We used to walk around inside the boundary fence of our compound, always by appointment with a friend, partly for company and partly to have someone to see that our noses did not freeze and become frost-bitten. I had many long tramps in the company of Edward White, who was an interesting talker. Our only news came by bribing our Manchurian guards. The news was passed round secretly and read out to squad members when the Japanese were out of the way. After six months the cold gave way to spring, and we again moved south to Mukden, where we joined a large party of Americans and British. Edward White carried on with his usual composure and quiet determination and had become a universal favourite among all ranks and all nations. When the war ended, the Russians locked up the Japanese and handed over their arms to us at a ceremonial parade. The behaviour of the Japanese in these trying circumstances was almost unbelievably dignified and self-controlled.

Edward White earned our admiration for his own control of his emotions. Some time when we were at Shirakawa it became known to some of us that his only son had died of meningitis when on service in northern Australia. Only about four of us knew; and we decided that, if he knew, he wished to keep it to himself. If he did not know, we feared that the shock might do him serious injury. So we decided not to mention the sad news to him. After the war we learned that he had known from his own mail at the same time as we did, but had never breathed a word about his loss. Edward White was not only a good commanding officer and a fine comrade, but a great man.

DR. ROBERT FOWLER writes: The death of Dr. E. R. White brings to a close an eventful and distinguished career. Born into an era of intense scientific, social and political activity, Edward White found much to occupy his time and talents during a span of 74 years. His was a buoyant personality gallantly breasting the full tide of human affairs. As a detailed list of his accomplishments will appear elsewhere, I propose to keep his memory green by recording one or two of his own anecdotes. It was always good entertainment to meet Teddy White at the club and to find him in reminiscent mood. More than once I heard him tell of two episodes which seem to have given him life-long amusement and satisfaction: the first had to do with cricket at Geelong Grammar School; the second was concerned with his part in the evacuation at Gallipoli. Each episode reveals Ted as baffled but unbeaten; each episode leads on to anti-climax.

On one occasion, as captain of the school eleven, Ted was faced with the problem of dislodging an opposing batsman (S. M. Bruce), who looked set for a mammoth score. Putting himself on as a slow bowler, Ted posted his tallest and safest fieldsmen at deep long-on. The first ball went for a six, but on attempting to repeat the stroke Bruce was caught at long-on. Although given out, Lord Bruce holds to this day that the fieldsmen over-reached the boundary in taking the catch. This difference of opinion was the cause of an extraordinary phenomenon in after years, when, by coincidence, the two protagonists occupied adjacent taxis in a Piccadilly Circus traffic hold-up. Disregarding the astonished Jehus, each put his head out the window and started yelling "Out" or "Not Out" as individual bias required.

The second episode relates to the military evacuation of Gallipoli in December, 1915. Unknown to either of them, the decision to evacuate had already been taken when, in November, the commanding officer, Light Horse Field Ambulance, embarked for Egypt, leaving Major Edward White in charge of the Unit. We can best picture the situation that arose by quoting a few sentences from Alan Moorehead's book on Gallipoli:

The plan that was finally adopted was . . . a gradual and secret withdrawal which was to take place during successive nights until at last only a small garrison was left. . . . Clearly everything would depend upon secrecy and the weather. . . . Each evening after dusk, flotillas of barges and small boats crept into Anzac Cove and there was a fever of activity all night as troops, animals and guns were got abroad. . . . Within an hour of night-fall, from dozens of little gullies and ravines . . . men were moving towards the shore. Not smoking or

talking, each group, when it reached the sea, stood quietly waiting for its turn to embark.

On the beaches huge piles of clothing, blankets, tinned food, ammunition and other stores were made ready to be destroyed. It was now that Major White found himself in a dilemma, since the Unit was carrying much more than the regulation load. Conspicuous amongst the *impedimenta* was a mass of personal gear left behind by the commanding officer against the day of his expected return. By dint of tact, determination and diplomacy, Ted managed to wangle the whole "box of dice" onto the last barge before dawn. But now came anti-climax. Having successfully evaded an exasperated embarkation officer on one side of the Mediterranean, the Major had reason to look forward to meeting a jubilant commanding officer on the opposite shore. Alas, it was not to be! As he figuratively laid the burden at his master's feet, the unemotional response was: "Thanks, Ted, for bringing my things. I'm sorry you forgot my riding boots."

Edward White's ineffable cheerfulness was much more than mere merriment, bringing him countless friends; his was a rich endowment of cheerful optimism that withstood the hardship and heartaches, harrowing some of his later years. Triumphant in adversity, his blithe spirit gently smoothed the way to a peaceful end—he died in his sleep.

SIR ALBERT COATES writes: My first association with Dr. Edward R. White was as a student at the Royal Women's Hospital in the early 1920's. I, like many others, was astounded at the skill and deftness with which E.R.W. repaired a cystocele. His operations on the female genitals were masterpieces of careful and neat technique.

In February, 1941, Colonel White was my commanding officer in the 10th Australian General Hospital. We went to Malaya together, and during the next twelve months I, like other officers, orderlies and nursing sisters of the 10th Australian General Hospital, learned to esteem our Colonel. Dr. Cotter Harvey and I were his constant companions, not only in the routine hospital work, but in the various social activities so richly provided by the British residents of Malacca. His expert opinion as an obstetrician was sought by civilian doctors in Malaya.

Largely at his instigation, clinical meetings were arranged at the Malacca Civilian Hospital, and officers of the Royal Australian Army Medical Corps participated in the regular weekly discussions. The Colonel was a friendly soul, and it was easy for him to obtain the utmost collaboration from the medical men of the British Colonial Service. He oiled the wheels. We were not surprised when, at the time of our baptism of fire at Oldham Hall, Singapore, the last home of the 10th Australian General Hospital, the Colonel set us an example of serenity and quiet, undisturbed behaviour, during the daily and nightly bombings about our quarters. Wearing his tin hat, he was at his office table on the balcony of the old Chinese school, calmly carrying out his duties as if the enemy were a hundred miles away. His last words to me on "Black Friday" night, February 13, 1942, were instructions to "get out" and his kindly felicitations for a safe voyage home.

We next met in September, 1945, at Labuan in Borneo. We commenced our little talks, never prolonged or bitter, of our experiences of the intervening years. A sad blow at this time was the first news of the death of his only son, Jim, while on active service in the north. Despite the fact that Colonel White was informed of the tragic circumstances, he bore this added burden with equanimity. His late wife, Gladys, was to be a friend to my wife and to the wives of the other prisoners of war during the years of waiting.

Never one to dramatize, he passed on his way, serving on committees for the review of the health of ex-prisoners of war, and as a member of assessment tribunals for the Repatriation Department. A heart attack in 1957 slowed down his activities. Tennis, his beloved game, at which he was a master, had to be abandoned. His lovely grass court, of which he was so proud, was the scene of many a friendly but hard-fought game. He passed away in his sleep, unobtrusively, in perfect character with the pattern of his life. A gentleman who served, one of the salt of the earth. Long may his savour remain!

PROFESSOR LANCE TOWNSEND writes: Soon after the death of Dr. Arthur Wilson in 1948, Dr. Edward White considered that the name of Dr. Wilson should be perpetuated in some form or another. He formed a committee of interested people, and was the driving force behind the Arthur Wilson Appeal. This appeal raised £8000. Dr. White then estab-

lished the Arthur Wilson Foundation. This foundation, of which he was the first chairman, had three main objects: first, to have an annual lecture to commemorate the name of Arthur Wilson; secondly, to establish in Melbourne the home of the Australian Regional Council of the Royal College of Obstetricians and Gynaecologists; and thirdly, to foster research in obstetrics and gynaecology.

In his lifetime the first two objects were achieved, and he lived to see and chair the first four Arthur Wilson lectures. He was present at the opening of the College House in Melbourne, and was able, on behalf of the Arthur Wilson Foundation, to hand over the building to the Royal College of Obstetricians and Gynaecologists in the person of the then president, Mr. Arthur Gemmell—the total assets handed over being about £30,000.

He was always interested in the Chair of Obstetrics and Gynaecology at the University of Melbourne, and was instrumental in having the title of the Chair changed in 1949 from that of Obstetrics to that of Obstetrics and Gynaecology. He took a personal interest in the first Professor of Obstetrics and Gynaecology when he was appointed in 1951, and soon afterwards interested his brother, Dr. A. E. Rowden White, in setting up the A. E. Rowden White and Edward R. White Foundation for Medical Research at the Royal Women's Hospital, whereby an annual grant of £2000 is paid to the University of Melbourne for research in the University Department at the Royal Women's Hospital. In this way he was able to foster research in his own hospital. In the last ten years Dr. Edward White was considered the doyen of the obstetricians and gynaecologists in Melbourne, and was as a father to many of the younger specialists. He helped them with good advice on all occasions. He moulded the members of the Arthur Wilson Foundation so that they became a force in obstetrical and gynaecological circles, and his influence will be felt for many years to come.

I consulted Dr. White on many matters, as I respected his judgement; he was always approachable, he never forced his point of view, and he was willing to help when called upon. With his death those who helped to found the Regional Council of the Royal College of Obstetricians and Gynaecologists in Victoria have all passed on. I trust that those who carry on their good work will be as worthy as he was.

Dr. R. G. WORCESTER writes: At an early stage of my career I was privileged to work with Dr. Edward Rowden White at the Women's Hospital, Melbourne, and later in private practice. At that time he was a senior gynaecologist and for a number of years chairman of the honorary medical staff. Edward White was always conscious of his responsibilities and had a high sense of duty, and the welfare and progress of the hospital were his main concern. He took a great interest in his junior colleagues and resident medical officers, and was most helpful to many of them.

As a surgeon he was thoughtful and considerate to his patients, and his work was performed with meticulous care and attention to detail. This was particularly noticeable when he performed the Manchester operation, which he insisted should be given its correct name, and not known as Fothergill's operation, as it was often called at that time. He was the first person to demonstrate this operation in the U.S.A.

Dr. White served his country for the second time, and after a long period as a prisoner of war he retired from medical practice. However, he had many other interests, in particular the Royal College of Obstetricians and Gynaecologists.

In all his activities he was enthusiastic and energetic, and though he had many personal misfortunes, he presented a cheerful face to the world. By his death we have lost a great colleague and a true friend.

Correspondence.

BLOOD GROUPS AND DISEASE.

SIR: I have read your "Current Comment" on "Blood Groups and Disease" (November 29) with interest. Dr. Manuella's statements are cogent, but his article would infer that there is no problem to investigate. On this I would disagree. In carcinoma of the stomach, on which most of his arguments are based, although the incidence of blood group gene A is only some 5% higher than expected, Dr.

Manuella fails to draw attention to the fact that all reports have shown in varying degree an incidence higher than expected, none lower; the figures now available represent 22 series from 14 countries amounting to well over 11,000 proven cases. This is a phenomenon which requires explanation. Dr. Manuella, alas, does not give the criteria which would satisfy him, except to request sibship studies. As with duodenal ulcer and blood group O, evidence already points away from blood group gene A being directly related to the inheritance of gastric cancer,¹ as I previously suggested.² Dr. Manuella does not dilate on the most likely possibility that the results are brought about by some systematic error in sampling, but this, of course, would imply that there is a real phenomenon to be uncovered.

Yours, etc.,

201 Macquarie Street,
Sydney,
December 1, 1958.

B. P. BILLINGTON.

A LESSON IN HUMILITY (AND EXEGESIS).

SIR: Ben Sirach's works are notorious for mutilation and corruption by translators. There is the highest authority for making the couplet quoted by Godfrey Harris read:

He that sinneth before his Maker
behaveth proudly before the physician.

This, apart from deriving from a venerable Hebrew text, is more in the spirit of Ben Sirach, who wrote in the highest terms of doctors.

This respect has not always endured, for we find a commentator (Bratzlav, 1800?) remarking in parenthesis:

It was difficult for the angel of Death to kill everybody in the whole world, so he appointed physicians to help him.

Yours, etc.,

10 Ledbury Court,
Toorak,
Victoria.
November 26, 1958.

HARRY SHANNON.

Research.

THE OPHTHALMIC RESEARCH INSTITUTE OF AUSTRALIA.

ANNUAL REPORT.

THE following is the annual report of the Board of Management of the Ophthalmic Research Institute of Australia for the year ended July 31, 1958. It was presented at the sixth annual general meeting of the Institute held in Adelaide on October 20, 1958, and is published here at the request of the Board.

The Board of Management has pleasure in presenting its report to the members of the Institute.

Oration by Sir Stewart Duke-Elder.

On October 3, 1957, at the Wilson Hall, the University of Melbourne, in the presence of the Right Honourable the Lord Mayor of Melbourne, Councillor F. W. Thomas, Sir Stewart Duke-Elder delivered an oration on the prevention of blindness.

The official party consisted of the Chancellor of the University, the Honourable Mr. Justice Dean; the State Minister for Health, the Honourable Mr. Cameron; the President of the Ophthalmological Society of Australia, Dr. Kevin O'Day; the Chairman of the Ophthalmic Research Institute of Australia, Dr. Archie S. Anderson; the Dean of the Faculty of Medicine, Professor S. Sunderland; and the Vice-Chancellor of the University, Sir George Paton.

The Chancellor presided, welcomed Sir Stewart Duke-Elder in the name of the University, and referred to the University's desire to establish a chair of ophthalmology. He announced that a fund for its establishment had been opened, and already over £43,000 had been received.

¹ Sommers, S. C. (1958), *Arch. Path.*, 60: 487.

² Billington, B. P. (1956), *Australasian Ann. Med.*, 5: 141.

Professor Sunderland spoke of the eagerness with which the Faculty of Medicine welcomed this development, and of the advantages that would derive from it.

The Chairman of the Institute introduced Sir Stewart Duke-Elder and thanked Dr. Ringland Anderson and his team of helpers for the tremendous amount of skill and time-consuming work done by them in organizing the meeting.

Sir Stewart Duke-Elder then delivered his oration, and, in conclusion, the President of the Ophthalmological Society of Australia moved a vote of thanks to the speaker, which was carried with acclamation. Sir Stewart Duke-Elder has since accepted an invitation to become a member of the Institute.

The oration was subsequently printed by courtesy of the Victorian Eye and Ear Hospital, and was widely circulated.

Director of Research and Chair of Ophthalmology.

An agreement has been made between the Victorian Eye and Ear Hospital, the University of Melbourne and the Institute which provides for the creation of a Chair of Ophthalmology at the University of Melbourne and a Research Unit at the Victorian Eye and Ear Hospital and the appointment of a Director of Research to the Institute. The two appointments are to be held concurrently by the Professor-Director, who will control the Research Unit at the hospital.

A Unit Research Advisory Committee has been set up with Dr. A. S. Anderson and Dr. A. Joyce representing the Institute, and also a Standing Committee for the Chair of Ophthalmology, with Dr. A. S. Anderson and Dr. A. Joyce representing the Institute. The terms relating to the appointment of the Professor-Director have now been agreed upon and the position advertised (by the Institute).

The share of salary payable by the Institute to the Professor-Director and some of his working expenses in connexion with the "Prevention of Blindness" Research Unit at the Victorian Eye and Ear Hospital will be made available from the "D.W. Funds" (an anonymous gift of £100,000, made primarily for this purpose by "a citizen of Canberra"). The conditions relating to this gift were incorporated in the annual report to the 1956 general meeting).

Liaison with the Ophthalmological Society of Australia.

The Board is anxious to cooperate fully with the Ophthalmological Society of Australia, and an invitation has been extended to the President of the Ophthalmological Society to attend, as an observer, Board meetings of the Institute. A representative of the Institute will also cooperate with the organizers of the meetings of the Ophthalmological Society to ensure a mutually satisfactory programme.

Resignation: Dr. Shortridge.

The resignation of Dr. Shortridge from the appointment of Honorary Treasurer has been accepted with regret. Dr. Shortridge has held this appointment since the foundation of the Institute in 1953. Dr. Deane-Butcher was appointed Acting Honorary Treasurer for the time being.

Gift of Books.

The following books have been received as a donation: "A Symposium of Glaucoma", from Dr. Tostevin; "The Eye Symptoms in Brain Tumours", from the author, Alfred Huber.

The manager of the Victorian Eye and Ear Hospital has agreed to make space available in the hospital library for books received by the Institute.

The Research Committee.

The Institute has undertaken to pay, for one year, the salary of a man to work in the Physiology Department of the University of Sydney with Professor Bishop in his research into the nervous impulses in the visual pathways. Dr. Ross Davis was appointed, will be known as the "Ophthalmic Research Institute Fellow", and commenced work in January, 1958.

The Institute has undertaken to provide one-quarter of the salary for one year of a laboratory technician to assist Dr. Greer at the Victorian Eye and Ear Hospital in research activities, provided the amount does not exceed £400. Mr. J. A. Davis has been appointed in this capacity and is to commence duty on August 3, 1958.

The D.W. Funds Committee.

Expenditure of up to £5000 per year for five years to provide for the salary and working costs of the Director has been approved by the Board of Management. Particulars relating to the state of the D.W. Funds Account are incorporated in the financial report.

During the last financial year five formal meetings were held—three of the "D.W. Funds" Committee and two of the Investment Advisory Committee. At each of the latter a complete review of the investment portfolio was made, the aim being to secure a variety of first-class general equity stocks, together with a proportion of fixed interest bearing securities.

All administrative expenses of the "D.W. Funds", except special stationery, have been absorbed privately.

Donations.

The Board acknowledges with thanks the many donations received during the year, which will greatly assist the Institute's research programme.

A function held by Hicks Atkinson Limited was responsible for a number of donations, and to them our special thanks are extended.

The Board records its appreciation of the valuable help received from the members of committees, office-bearers, and from all those who have subscribed to the funds of the Institute during the year.

Three Board meetings have been held—two in Melbourne and one in Sydney.

ARCHIB S. ANDERSON,

Chairman of the Board.

LIST OF DONATIONS.

The following is a list of donations of ten pounds and over received by the Institute during the year ended July 31, 1958: Holeproof Limited, 204 Sydney Road, Brunswick, Victoria, £25; L. W. Thompson Rathmore, 76 Athelston Road, Camberwell, E.6, Victoria, £25; anonymous—per J. Ringland Anderson, £12 12s.; Mr. Ian Beaurepaire, c/o Olympic Consolidated Industries, £50; Eric J. Morgan and Co., Box 30, Collins Street P.O., Melbourne, £25; Mrs. Audrey Dudley, 2 Landen Place, Toorak, Melbourne, £10 10s.; E. L. Heymansson and Co., 419 Lonsdale Street, Melbourne, £21; Wm. Noall and Co., 401 Collins Street, Melbourne, £25; Miss M. E. Hunter, 210 Orrang Road, Toorak, Melbourne, £10; Uncle George Club, 27 Gourlay Street, Balaclava, Victoria, £50; Theo H. Levy Pty. Ltd., 124 Exhibition Street, Melbourne, £10; Percy Baxter Charitable Trust, The Perpetual Executors and Trustees Association of Australia Ltd. (being the first of five annual donations), £1000; Donald McLean, 16 St. Leonards Court, South Yarra, S.E.1, £100; Mrs. N. V. McLean, 16 St. Leonards Court, South Yarra, S.E.1, £150; Optical Prescriptions Spectacle Makers Pty. Ltd., Wingello House, Angel Place, Sydney (the second of six payments), £1000; H. Arendsen and Sons Pty. Ltd., 1305-15 Malvern Road, Malvern, Melbourne, £10 10s.; Artenbag (Mr. Arten), 244 Joynston Street, Fitzroy, Melbourne, £10; Bambi Leather Goods, 34 Piers Street, East Brunswick, Melbourne, £10 10s.; J. Batten Pty. Ltd., 495 Collins Street, Melbourne, £10 10s.; Bedgood and Co. Pty. Ltd., Agnes Street, East Melbourne, £10 10s.; Henry Berry and Co. (Aust.) Ltd., 212 King Street, Melbourne, £52 10s.; Bogle and Banfield, 112 Jolimont Road, Jolimont, Melbourne, £10 10s.; Mr. F. W. Briggs, c/o Kiddie, Briggs and Willcox, 15 Queen Street, Melbourne, £25; British United Shoe Machinery Co., 423 Smith Street, Fitzroy, Melbourne, £50; Brooks Robinson Pty. Ltd., 59 Elizabeth Street, Melbourne, £25; Carrier Bag Co. Ltd., 109 Hawke Street, West Melbourne, £10 10s.; Cook and Heathcote Pty. Ltd., 45 Market Street, Melbourne, £20; Croft Bank Dairies Ltd., 118 Queen Street, Melbourne, £25; Danby, Ciddy and Outwalte Pty. Ltd., 20 Queen Street, Melbourne, £21; Dowd Associates Pty. Ltd., 19 Hodgson Street, Fitzroy, Melbourne, £50; H. G. Foletta and Co. Pty. Ltd., 491 Nicholson Street, North Carlton, Melbourne, £10 10s.; Mrs. O. Geiger, 176 Kooyong Road, Toorak, Melbourne, £20; Mr. Kurt Geiger, 176 Kooyong Road, Toorak, Melbourne, £10 10s.; Grenoble Gloves, 360 Little Bourke Street, Melbourne, £10 10s.; Gross Knitting Mills Pty. Ltd., 586-90 Swanston Street, Carlton, Melbourne, £10 10s.; Mr. E. M. Harris, Harris and McLaren, 340 Little Collins Street, Melbourne, £10 10s.; Hawkins and Rossiter Pty. Ltd., 27 Hardway Street, Melbourne, £20; *The Herald and Weekly Times*, 44 Flinders Street, Melbourne, £25; Hilton Hosiery Ltd., 291 Albion Street, Brunswick, Melbourne, £50; Holeproof Ltd., Sydney Road, Brunswick, Melbourne, £15 15s.; Johnson and Sons Ltd., 44 Derby Street,

Collingwood, Melbourne, £20; Kreuzer Leather and Sole Cutting, 382A Brunswick Street, Fitzroy, £10 10s.; La Mode Industries Pty. Ltd., 13-43 Victoria Street, Fitzroy, £10 10s.; Lasica Pty. Ltd., 13-17 Albert Street, Brunswick, £10 10s.; Lincoln Mills (Aust.) Ltd., Gaffney Street, Coburg, Melbourne, £10 10s.; Malleon Stewart and Co., 105 King Street, Melbourne, £21; A. Mushin and Miller Pty. Ltd., 219 Johnson Street, Fitzroy, £10; National Cash Register Co., 124 Russell Street, Melbourne, £10 10s.; Mr. A. H. Norman, 60 Elizabeth Street, Melbourne, £10; Ian Potter and Co., 360 Collins Street, Melbourne, £250; W. M. Ritchie (Aust.) Pty. Ltd., 387 Kent Street, Sydney, £25; R.M.S. Pty. Ltd., 192-196 Riversdale Road, Hawthorn, Melbourne, £35 15s.; Sennitt and Son Pty. Ltd., Riverside Avenue, South Melbourne, £20; Sharene Creations Pty. Ltd., 24 Victoria Street, Carlton, £10 10s.; Shaw Bros. Mfg. Co. Ltd., 157 Victoria Parade, Collingwood, £10 10s.; Socomin (Aust.) Pty. Ltd., 473 Bourke Street, Melbourne, £15; Sun Electric Co. Pty. Ltd., 562 Little Bourke Street, Melbourne, £10 10s.; Swanson Bros. Pty. Ltd., 663 Chapel Street, South Yarra, Melbourne, £21; Wallace Buck and Goodes Pty. Ltd., 317 Flinders Lane, Melbourne, £10 10s.; Wenzel Pty. Ltd., 313 Flinders Lane, Melbourne, £10 10s.; Wheel of Fashion Pty. Ltd., 383 High Street, St. Kilda, Melbourne, £15; A. J. White and Son Pty. Ltd., 190 High Street, Prahran, Melbourne, £10; A. Wilder Manufacturing Co. Pty. Ltd., 45 A'Beckett Street, Melbourne, £10 10s.; Wilson, Danby and Giddy, 105 King Street, Melbourne, £20; Yellow Express Carriers Ltd., 134 Jeffcott Street, West Melbourne, £15 15s.; Hicks Atkinson Limited, 350 Collins Street, Melbourne, £250; Mr. S. Korman, Stanhill Pty. Ltd., 34 Queens Road, Melbourne, £100; Dr. D. O. Crompton, Newland House, 80 Brougham Place, Adelaide, £25; South African Fire and Accident Insurance Co. Ltd., 473-481 Bourke Street, Melbourne, £10 10s.; Commonwealth Motors Pty. Ltd., 111-125A Beckett Street, Melbourne, C.I., £25; General Motors-Holden's Ltd., c/o S. A. Cheney, 22 Flinders Street, Melbourne, £100; Mr. Arthur J. Day, 227 Toorak Road, South Yarra, S.E.1, £26 5s.

Notes and News.

Medical Technology Convention.

The first Australian Medical Technology Convention is to be held in Sydney from December 15 to 19, 1958. It is being arranged by the Australasian Institute of Medical Laboratory Technology, New South Wales Branch, under the presidency of Mr. J. W. Hopson. The programme commences on Monday, December 15, at 10.30 a.m., when the Minister for Health, the Right Honourable W. F. Sheahan, will open the Exhibition in the State Ballroom, Market Street, Sydney. The Exhibition will continue on the following day. On Wednesday and Thursday, December 17 and 18, lectures will be given during the day at the School of Public Health and Tropical Medicine in the University grounds. On Wednesday evening, at the Red Cross Blood Transfusion Service, York Street, Sydney, Dr. G. Archer will speak on "The Technologist and Blood Transfusion". On Thursday evening, in the New Medical School, University of Sydney, Mr. S. Woodward-Smith will present films on "Colour Photography in Teaching", and inspections will be made of the Photographic Department and Museum of Pathology. On Friday, December 19, various laboratories will be open during the day for inspection for country and interstate visitors. A dinner and ball in the evening will conclude the convention. Further information may be obtained from the Secretary of the Institute, Mr. L. J. Lawler, The Old Medical School, University of Sydney, Sydney.

The Medical Women's Society of New South Wales Annual Prize.

The following are details of the Medical Women's Society of New South Wales Annual Prize.

1. The Medical Women's Society of New South Wales shall award a prize of the value of 25 guineas, open to any medical woman registered in New South Wales.
2. The prize shall be awarded for an original contribution on a subject of medical interest published or ready for publication during that year.
3. In the event of a contribution by two or more medical women in collaboration, the prize shall be divided equally between the contributors. Work done in collaboration with other than medical women may be submitted.

4. The Medical Women's Society of New South Wales shall appoint examiners, and the award will be made on their recommendation.

5. The closing date for entries is February 28, 1959. Entries should be submitted to the Honorary Secretary, The Medical Women's Society of New South Wales, Rachel Forster Hospital for Women and Children, 150 Pitt Street Redfern, N.S.W.

6. The prize shall not be awarded if either the examiners or the committee of the Society consider that the standard of the work or works is not sufficiently high to justify the award of the prize.

New Assistant Director-General for the World Health Organization.

Dr. M. G. Candau, Director-General of the World Health Organization, announces the appointment of a new Assistant Director-General, Dr. Nicolay Ivanovich Grashchenkov, formerly Chairman of the Medical Research Council of the U.S.S.R. He succeeds Dr. W. Aeg. Timmerman, who recently left his post, having reached retirement age.

Naval, Military and Air Force.

APPOINTMENTS.

The following appointments, changes etc. are published in the *Commonwealth of Australia Gazette*, No. 65, of October 23, 1958.

NAVAL FORCES OF THE COMMONWEALTH.

Citizen Naval Forces of the Commonwealth.

Royal Australian Naval Reserve.

Termination of Appointments.—The appointments of John Joseph Power and William Ewan Sandover as Surgeon Lieutenants are terminated, dated 31st July, 1958.

The following appointments, changes etc. are published in the *Commonwealth of Australia Gazette*, No. 66, of October 30, 1958, and No. 68, of November 6, 1958.

NAVAL FORCES OF THE COMMONWEALTH.

Citizen Naval Forces of the Commonwealth.

Royal Australian Naval Reserve.

Appointments.—William Bondfield Stephens is appointed Surgeon Lieutenant, dated 1st July, 1958. William Murray Ivan Maxwell is appointed Surgeon Lieutenant, dated 1st July, 1958.

District Naval Medical Officer.—The resignation of Surgeon Lieutenant Trevor Nelson Hatfield of his appointment as District Naval Medical Officer, Western Australia, is accepted, dated 1st November, 1957.

Termination of Appointment.—The appointment of Grant Pattison as Surgeon Lieutenant is terminated, dated 31st July, 1958.

AUSTRALIAN MILITARY FORCES.

Citizen Military Forces.

Northern Command.

Royal Australian Army Medical Corps (Medical).—2/104175 Captain N. R. Scott-Young is transferred to the Reserve of Officers (Royal Australian Army Medical Corps (Medical)) (Northern Command), 5th September, 1958. 1/61869 Honorary Captain I. L. Chapple is appointed from the Reserve of Officers, and to be Captain (provisionally), 30th July, 1958.

Eastern Command.

Royal Australian Army Medical Corps (Medical).—3/129137 Captain (provisionally) G. H. K. Tippet relinquishes the provisional rank of Captain, 9th August, 1958, is transferred to the Reserve of Officers (Royal Australian Army Medical Corps (Medical)) (Eastern Command), and is granted the honorary rank of Captain, 10th August, 1958.

Southern Command.

Royal Australian Army Medical Corps (Medical).—The provisional appointment of 3/129435 Captain K. E. Stuchbery is terminated, 18th June, 1958. To be Captain (provisionally), 19th June, 1958; 3/129435 Kenneth Edmund Stuchbery.

Central Command.

Royal Australian Army Medical Corps (Medical).—4/32015 Captain (provisionally) W. D. Proudman is seconded whilst in the United Kingdom, 7th June, 1958. The provisional appointments of the following officers are terminated: Captains 4/32082 L. L. Hoare, 1st May, 1958, 4/32015 W. D. Proudman and 4/32062 H. W. Welch, 6th June, 1958, and 4/32087 C. Croucher, 22nd July, 1958. To be Captains (provisionally): 4/32082 Lehone Lucas Hoare, 2nd May, 1958, 4/32015 William David Proudman and 4/32062 Howard Walter Welch, 7th June, 1958, and 4/32087 Cobin Croucher, 23rd July, 1958. To be Captain (provisionally), 11th September, 1958: 4/32104 William George Tucker.

Western Command.

Royal Australian Army Medical Corps (Medical).—5/26555 Captain (provisionally) F. W. S. Easton is seconded whilst in the United States of America, 5th September, 1958. The provisional appointments of the following officers are terminated: Captains 5/26555 F. W. S. Easton, 4th September, 1958, 5/26559 P. M. Connor, 13th September, 1958, and 5/38067 B. A. Kakulas, 14th September, 1958. To be Captains (provisionally): 5/26555 Frederick William Spencer Easton, 5th September, 1958, 5/26559 Peter Maxwell Connor, 14th September, 1958, and 5/38067 Byron Arthur Kakulas, 15th September, 1958. The provisional appointment of 5/26560 Captain D. Golinger is terminated, 13th September, 1958. To be Captain (provisionally), 14th September, 1958: 5/26560 Donald Golinger.

Tasmania Command.

Royal Australian Army Medical Corps (Medical).—6/15338 Lieutenant-Colonel C. W. Clarke is appointed from the Reserve of Officers, is appointed Deputy Director of Medical Services, Headquarters Tasmania Command, and to be Colonel, 1st October, 1958, and 6/15311 Colonel P. Braithwaite, E.D., relinquishes the appointment of Deputy Director of Medical Services, Headquarters Tasmania Command, 30th September, 1958, and is transferred to the Reserve of Officers (Tasmania Command), 1st October, 1958 (in lieu of the notification respecting these officers which appeared in Executive Minute, No. 75, of 1958, promulgated in Commonwealth Gazette, No. 59, of 1958).

Reserve Citizen Military Forces.**Royal Australian Army Medical Corps (Medical).**

The following officers are placed upon the Retired List (Central Command) with permission to retain their rank and wear the prescribed uniform, 31st October, 1958: Major S. Krantz and Captain C. C. Jungfer.

Central Command.—The following Officers are retired, 31st October, 1958: Honorary Captains F. J. A. Juttner and M. A. Trudinger.

Southern Command.—Lieutenant-Colonel R. G. Worcester, E.D., is placed upon the Retired List (Southern Command), and is granted the honorary rank of Colonel, with permission to wear the prescribed uniform, 13th September, 1958.

The following officers are placed upon the Retired List (Southern Command) with permission to retain their rank and wear the prescribed uniform, 31st October, 1958: Captain (Honorary Major) E. G. Robertson and Captain A. A. M. Campbell.

The following officer is retired, 31st October, 1958:

Southern Command.—Honorary Major R. K. Scott.—(Ex. Min. No. 85—Approved 30th October, 1958.)

The following appointments, changes, etc., are published in the *Commonwealth of Australia Gazette*, No. 71, of November 13, 1958.

ROYAL AUSTRALIAN AIR FORCE.**Permanent Air Force.****Medical Branch.**

Flight Lieutenant G. C. Nelson (018487) is granted the acting rank of Squadron Leader, 21st August, 1958.

Active Citizen Air Force.**Medical Branch.**

No. 22 (*City of Sydney*) Squadron.—Brian John Stevenson Hartnett (0211709) is appointed to a commission, on probation for a period of twelve months, 1st December, 1957, with the rank of Flight Lieutenant. Flight Lieutenant B. L. H. Leigh (0211247) is transferred from the Reserve, 31st May, 1958.

No. 23 (*City of Brisbane*) Squadron.—Flight Lieutenant G. J. Burgess (018411) is transferred from the Reserve, 17th August, 1957. The date in the notification regarding the transfer of Flight Lieutenant R. J. M. Byrne (015118) to the Reserve, as approved in Executive Council Minute No. 1 of 1958, appearing in Gazette No. 3 dated 16th January, 1958, is amended to read 1st August, 1955.

Sydney University Squadron.—Pilot Officer T. A. G. Torda (0211567) is promoted to the rank of Flight Lieutenant, 13th December, 1957.

Air Force Reserve.**Medical Branch.**

The following are appointed to a commission with rank as indicated: (Squadron Leader) Bryan Harle Gandevia (257983), 2nd December, 1957; (Flight Lieutenant) Leon George Gillam (89455), 22nd October, 1957; Peter James Phillips (257982), 14th November, 1957; Peter Deryk Bryant (268101), 26th November, 1957.

The following Air Cadets are appointed to a commission provisionally, with the rank of Pilot Officer: Giorgio Romano Santoro (036612), 21st March, 1957; Gordon Stuart Baron-Hay (053080), Maris Atis Rozenbils (042528), 3rd December, 1957; Peter Gabriel Barta (0312743), Colin Norman Luth (0313373), Peep Arnold Otis (0312764), 25th June, 1958; Hamilton Keith Harper (0211603), Graham Jon Macdonald (0215268), John Albert Saalfeld (0211660), John Harvey Thomas (0213912), 23th June, 1958; Anthony Ian Kingston (041881), 10th August, 1958.

The provisional appointment of the following Pilot Officers is confirmed and they are promoted to the rank of Flight Lieutenant: R. J. Chapman (026761), G. M. Lambert (0211519), A. J. Reading (026836), 24th January, 1957; D. A. Noble (015181), 18th December, 1957; J. E. S. Alwyn (04778), 26th May, 1958.

The following Flight Lieutenants (Temporary Squadron Leaders) are promoted to the temporary rank of Wing Commander: R. C. Willis (253219), 17th July, 1958; G. A. Robbie (256865), 14th August, 1958.

Flight Lieutenant J. W. Gardiner (257561) is promoted to the temporary rank of Squadron Leader, 26th February, 1958.

Flight Lieutenant J. K. Joyce (018129) is placed on the Retired List with the honorary rank of Squadron Leader, 2nd September, 1957.

The appointment of the following officers is terminated: Flight Lieutenant (Temporary Squadron Leader) W. H. Smith (253443), 1st June, 1958; Flight Lieutenant G. R. Gibson (0211526), 25th June, 1958.

The following appointments, changes, etc., are published in the *Commonwealth of Australia Gazette*, No. 72, of November 20, 1958.

AUSTRALIAN MILITARY FORCES.**Australian Regular Army.****Royal Australian Army Medical Corps (Medical).**

The Short Service Commission granted to 3/12028 Captain J. T. O'Dowd is extended until 23rd September, 1958.

3/12028 Captain J. T. O'Dowd is transferred to the Reserve of Officers (Royal Australian Army Medical Corps (Medical)) (Eastern Command), 24th September, 1958.

Citizen Military Forces.**Northern Command.**

Royal Australian Army Medical Corps (Medical).—1/39223 Honorary Captain R. E. C. Stringer is appointed from the Reserve of Officers, and to be Captain (provisionally), 19th

September, 1958. 1/46756 Captain G. Borzi is transferred to the Reserve of Officers (Royal Australian Army Medical Corps (Medical)) (Northern Command), 16th September, 1958. To be Captain (provisionally), 2nd October, 1958: 1/39222 William John Crawford. To be Major, 11th August, 1958: 1/39185 Captain R. L. Hockin.

Eastern Command.

Royal Australian Army Medical Corps (Medical).—The provisional rank of 2/134210 Captain V. J. Adcock is confirmed. To be Captains (provisionally), 2nd October, 1958: 2/158721 Leo Arthur Feain and 2/217026 Harold Elliott Masters.

Southern Command.

Royal Australian Army Medical Corps (Medical).—To be Captain (provisionally), 10th October, 1958: 3/101042 Lionel Warwick Coppleson.

Central Command.

Royal Australian Army Medical Corps (Medical).—2/127017 Captain W. C. Woods relinquishes the provisional rank of Captain, 18th September, 1958, and is transferred to the Reserve of Officers (Royal Australian Army Medical Corps (Medical)) (Central Command) in the honorary rank of Captain, 19th September, 1958.

Reserve Citizen Military Forces.

Royal Australian Army Medical Corps (Medical).

Northern Command.—Honorary Captain P. E. Rodriguez is retired, 8th July, 1951.

Southern Command.—To be Honorary Captains. Geoffrey Wyatt Dahlenburg, 29th July, 1958; Michael Patkin and Gerald John Gartlan, 9th August, 1958; and Stanley Gold, 1st September, 1958.

Central Command.—To be Captain, 7th October, 1958: Phyllis Edna Rodriguez.—(Ex. Min. No. 91—Approved 10th November, 1958.)

Australian Medical Board Proceedings.

NEW SOUTH WALES.

The following additions and amendments have been made to the Register of Medical Practitioners for New South Wales, in accordance with the provisions of the *Medical Practitioners Act, 1938* to 1958:

Registered medical practitioners who have complied with the requirements of Section 17E (3) and are registered under Section 17 (1a) of the Act: Hennessey, John Francis, M.B., B.S., 1951 (Univ. Queensland); Ople, Peter, Bruce, M.B., B.S., 1956 (Univ. Adelaide).

Registered medical practitioners who have complied with the requirements of Section 17 (3) and are registered under Section 17 (1b) of the Act: Balmer, Charles Hill, M.B., B.Ch., 1956 (Q.U., Belfast); Ferguson, Helen Margaret, M.B., B.S., 1954 (Univ. Durham); Foxwell, Peter Burford, M.B., B.S., 1948 (Univ. London), L.R.C.P. (London), 1948. F.R.C.S. (England), 1953; Kay, Michael Doveton, M.B., Ch.B., 1951 (Univ. Capetown); Linsell, Ann Latimer, M.B., Ch.B., 1941 (V.U., Manc.), D.P.H. (R.C.P. & S.), 1957; Mason, Annabel Jane Maud, M.B., B.S., 1955 (Univ. London), M.R.C.S. (England), L.R.C.P. (London), 1955; Schokman, Eric Samuel, M.B., B.S., 1948 (Univ. Ceylon); Slater, Aubrey Laurence, M.B., B.S., 1950 (Univ. London), M.R.C.S. (England), L.R.C.P. (London), 1950; Spencer, Michael Charles, B.M., B.Ch., 1949 (Univ. Oxford); Thomson, John Richard, M.B., Ch.B., 1950 (Univ. Glasgow).

Registered medical practitioners who have complied with the requirements of Section 17 (3) and are registered under Section 17 (2A) of the Act: Heyko-Porebski, Jan Antoni, M.B., 1936 (Univ. Poznan); James, Alexander, M.D., 1910 (Univ. Moscow); Toch, Walter Vojtech, M.D., 1937 (Univ. Brno).

Registered medical practitioner who has complied with the requirements of Section 17 (3) and is registered under Section 17 (2B) of the Act: Kariks, Jekabs, M.D., 1949 (Univ. Tubingen), D.T.M. & H. (Sydney), 1957.

DISEASES NOTIFIED IN EACH STATE AND TERRITORY OF AUSTRALIA FOR THE WEEK ENDED NOVEMBER 22, 1958.¹

| Disease. | New South Wales. | Victoria. | Queensland. | South Australia. | Western Australia. | Tasmania. | Northern Territory. | Australian Capital Territory. | Australia. |
|--|------------------|-----------|-------------|------------------|--------------------|-----------|---------------------|-------------------------------|------------|
| Acute Rheumatism | .. | 1 | .. | .. | .. | .. | .. | .. | 1 |
| Amoebiasis | .. | .. | .. | .. | .. | .. | .. | .. | .. |
| Ancylostomiasis | .. | .. | .. | .. | .. | .. | .. | .. | .. |
| Anthrax | .. | .. | .. | .. | .. | .. | .. | .. | .. |
| Bilharziasis | .. | .. | .. | .. | .. | .. | .. | .. | .. |
| Brucellosis | 1(1) | .. | .. | .. | .. | .. | .. | .. | 1 |
| Cholera | .. | .. | .. | .. | .. | .. | .. | .. | .. |
| Chorea (St. Vitus) | 3(3) | .. | .. | .. | .. | .. | .. | .. | 3 |
| Dengue | .. | .. | .. | .. | .. | .. | .. | .. | .. |
| Diarrhoea (Infantile) | 14(12) | 13(13) | 2(1) | .. | .. | .. | .. | 1 | 30 |
| Diphtheria | 2 | .. | .. | 1(1) | .. | .. | .. | .. | 3 |
| Dysentery (Bacillary) | .. | 2(1) | .. | .. | .. | .. | 6 | .. | 9 |
| Encephalitis | 1(1) | .. | .. | .. | .. | .. | .. | .. | 1 |
| Filariasis | .. | .. | .. | .. | .. | .. | .. | .. | .. |
| Homologous Serum Jaundice | .. | .. | .. | .. | .. | .. | .. | .. | .. |
| Hydatid | .. | .. | .. | .. | .. | .. | .. | .. | .. |
| Infective Hepatitis | 72(34) | 37(14) | 5(1) | 11(4) | .. | .. | 1 | .. | 126 |
| Lead Poisoning | .. | .. | .. | .. | .. | .. | .. | .. | .. |
| Leprosy | .. | .. | .. | .. | .. | .. | .. | .. | .. |
| Leptospirosis | .. | .. | .. | .. | .. | .. | .. | .. | .. |
| Malaria | .. | .. | .. | .. | .. | .. | .. | .. | .. |
| Meningococcal Infection | 2 | .. | .. | .. | .. | .. | .. | .. | 2 |
| Ophthalmia | .. | .. | .. | .. | 2 | .. | .. | .. | 2 |
| Ornithosis | .. | .. | .. | .. | .. | .. | .. | .. | .. |
| Paratyphoid | .. | .. | .. | .. | .. | .. | .. | .. | .. |
| Plague | .. | .. | .. | .. | .. | .. | .. | .. | .. |
| Polio-myelitis | .. | 3(3) | .. | .. | .. | .. | .. | .. | 3 |
| Puerperal Fever | .. | .. | 1 | .. | .. | .. | .. | .. | 1 |
| Rubella | .. | 64(45) | .. | 17(15) | 104(102) | .. | .. | .. | 185 |
| Salmonella Infection | .. | .. | .. | 1(1) | .. | .. | .. | .. | 1 |
| Scarlet Fever | 10(4) | 8(6) | 3(1) | 3(1) | .. | .. | 4 | .. | 28 |
| Smallpox | .. | .. | .. | .. | .. | .. | .. | .. | .. |
| Tetanus | .. | .. | 1 | .. | .. | .. | .. | .. | 1 |
| Trachoma | .. | .. | .. | .. | 4 | .. | 2 | .. | 6 |
| Trichinosis | .. | .. | .. | .. | .. | .. | .. | .. | .. |
| Tuberculosis | 34(28) | 18(10) | 9(6) | 7(3) | 7(4) | 3(3) | .. | .. | 76 |
| Typhoid Fever | .. | .. | 1(1) | .. | .. | .. | .. | .. | 1 |
| Typhus (Flea-, Mite- and Tick-borne) | .. | .. | .. | .. | .. | .. | .. | .. | .. |
| Typhus (Louse-borne) | .. | .. | .. | .. | .. | .. | .. | .. | .. |
| Yellow Fever | .. | .. | .. | .. | .. | .. | .. | .. | .. |

¹ Figures in parentheses are those for the metropolitan area.

Registered medical practitioner who has been issued with a licence under Section 21C of the Act: Reichardt, Julius, M.D., 1940 (Univ. Cluj).

Registered medical practitioner who has been issued with a Certificate of Regional Registration under Section 21A of the Act: Kisonas, Vytautas, M.D., 1939 (Univ. Kaunas), in respect of the Stroud Region.

TASMANIA.

THE following has been registered, pursuant to the provisions of the *Medical Act, 1955*, of Tasmania, as a duly qualified medical practitioner: Lindsay, John Gordon, M.B., Ch.B., 1953 (Univ. Glasgow), D.R.C.O.G., 1957.

The following has been licensed in pursuance of Section 15 of the *Medical Act, 1955*: Polic, Peter (Odessa), Flinders Island.

Corrigendum.

In the issue of November 1, 1958, at page 599, was published a paper by Howard Williams, Nancy Bowman and Gudrun Malare entitled "A Social Study of Burns and Scalds in Children", which was read at a meeting of the Paediatric Society of Victoria. In the issue of November 8, 1958, at page 647, is published a report of the meeting. In both places it is stated that the meeting was held on April 9, 1958. This is incorrect. The meeting was held on March 12, 1958. We regret this error.

Medical Appointments.

Dr. W. F. Joynt has been appointed Honorary Consulting Obstetrician (Maternity Section) at the Queen Elizabeth Hospital, Adelaide.

Dr. J. R. Magarey has been appointed Honorary Surgeon at the Queen Elizabeth Hospital, Adelaide.

Dr. J. H. Brown has been appointed Honorary Thoracic Surgeon with status of Honorary Assistant Surgeon at the Queen Elizabeth Hospital, Adelaide.

Dr. D. A. Simpson has been appointed Honorary Neurosurgeon with status of Honorary Assistant Surgeon at the Queen Elizabeth Hospital, Adelaide.

Dr. G. Howells has been appointed Medical Officer (Tuberculosis), Chest Clinic, Department of Health and Home Affairs, Toowoomba, Queensland.

Dr. G. Newman-Morris has been appointed Police Medical Officer, Victoria.

Dr. L. H. Ball has been appointed to be a Member of the Medical Board of Victoria.

Dr. R. J. Kilgariff has been appointed to be a Public Vaccinator in the Shire of Walpeup, Victoria.

Dr. J. R. Coulter has been appointed Surgical Research Officer at the Institute of Medical and Veterinary Science, Adelaide.

Dr. L. O. S. Poidevin has been appointed Senior Honorary Assistant Obstetrician (Maternity Section) and an Honorary Assistant Gynaecologist (General Section) at the Queen Elizabeth Hospital, Adelaide.

Dr. R. G. White has been appointed Honorary Orthopaedic Surgeon with status of Honorary Assistant Surgeon at the Queen Elizabeth Hospital, Adelaide.

Dr. V. Y. Bockner has been appointed Honorary Clinical Assistant (Gynaecological Section) at the Queen Elizabeth Hospital, Adelaide.

Dr. W. S. Reynolds has been appointed Deputy Superintendent of the Mental Hospital, Beechworth, Victoria.

Dr. D. A. Spalding has been appointed Government Medical Officer at Gayndah, Queensland.

Dr. Ruth Osmond has been appointed Clinical Pathologist at the Institute of Medical and Veterinary Science, South Australia.

The following have been appointed quarantine officers under the *Quarantine Act, 1908-1950*: Dr. J. K. Kneebone, Dr. N. S. P. Wicks, Dr. T. D. Manthorpe, at Port Lincoln; Dr. J. R. Saunders, Dr. R. G. Royce, at Geraldton; Dr. D. S. Carroll, at Botany Bay.

Nominations and Elections.

THE undermentioned has applied for election as a member of the Victorian Branch of the British Medical Association:

Shaw, Jacob, M.D., 1921 (Univ. Vienna) (registered in accordance with the provisions of the *Medical (Registration) Act, 1957*), 84 Elizabeth Street, Malvern, S.E.4, Victoria.

The undermentioned have been elected as members of the New South Wales Branch of the British Medical Association: Clark, Graeme Milbourne, M.B., B.S., 1958 (Univ. Sydney); Paine, Robert Lansdell, M.B., B.S., 1958 (Univ. Sydney); Fitzpatrick, Terence Edward Michael, M.B., B.S., 1957 (Univ. Sydney); Thompson, Graham Stuart, M.B., B.S., 1957 (Univ. Sydney); Heyko-Porebski, Jan Antoni, M.B., 1936 (Univ. Poznan) (registered in accordance with the provisions of Section 17 (2A) of the *Medical Practitioners Act, 1938-1958*).

Diary for the Month.

DEC. 16.—New South Wales Branch, B.M.A.: Hospitals Committee, Medical Politics Committee.

1959

JAN. 9.—Queensland Branch, B.M.A.: Council Meeting.

JAN. 19.—Victorian Branch, B.M.A.: Finance, House and Library Subcommittee.

Medical Appointments: Important Notice.

MEDICAL PRACTITIONERS are requested not to apply for any appointment mentioned below without having first communicated with the Honorary Secretary of the Branch concerned, or with the Medical Secretary of the British Medical Association, Tavistock Square, London, W.C.1.

New South Wales Branch (Medical Secretary, 125 Macquarie Street, Sydney): All contract practice appointments in New South Wales. Anti-Tuberculosis Association of New South Wales. The Maitland Hospital.

South Australian Branch (Honorary Secretary, 80 Brougham Place, North Adelaide): All contract practice appointments in South Australia.

Editorial Notices.

ALL articles submitted for publication in this Journal should be typed with double or treble spacing. Carbon copies should not be sent. Authors are requested to avoid the use of abbreviations and not to underline either words or phrases.

References to articles and books should be carefully checked. In a reference the following information should be given: surname of author, initials of author, year, full title of article, name of journal, volume, number of first page of the article. The abbreviations used for the titles of journals are those adopted by the Quarterly Cumulative Index Medicus. If a reference is made to an abstract of a paper, the name of the original journal, together with that of the journal in which the abstract has appeared, should be given with full date in each instance.

Authors submitting illustrations are asked, if possible, to provide the originals (not photographic copies) of line drawings, graphs and diagrams, and prints from the original negatives of photomicrographs. Authors who are not accustomed to preparing drawings or photographic prints for reproduction are invited to seek the advice of the Editor.

Original articles forwarded for publication are understood to be offered to THE MEDICAL JOURNAL OF AUSTRALIA alone, unless the contrary is stated.

All communications should be addressed to the Editor, THE MEDICAL JOURNAL OF AUSTRALIA, The Printing House, Seamer Street, Glebe, New South Wales. (Telephones: MW 2651-2-3.)

Members and subscribers are requested to notify the Manager, THE MEDICAL JOURNAL OF AUSTRALIA, Seamer Street, Glebe, New South Wales, without delay, of any irregularity in the delivery of this Journal. The management cannot accept any responsibility or recognize any claim arising out of non-receipt of journals unless such notification is received within one month.

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